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TRANSACTIONS

OF THE

Royal Academy of Medicine in Ireland

TRANSACTIONS

OF THE

Royal Academy of Medicine

IN IRELAND

VOL. XXI.

EDITED BY

JOHN B. STORY, M.B., F.R.C.S.

GENERAL SECRETARY

WITH

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COMPILED BY

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IN IRELAND.

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1901 Law, S. Horace, M.D., F.R.C.S. Throat Surgeon Adelaide Hospital, Surgeon Dublin Throat and Ear Hospital, 48 St. Stephen's-green, Dublin.

1884 Ledwich, Edward L'E., L.R.C.S., College Anatomist Royal College of Surgeons, 30 Upper Fitzwilliam-street, Dublin.

1900 Leeper, Richard R., F.R.C.S., St. Patrick's Hospital, Dublin

1891 Lennon, Edward Emmanuel, F.R.C.P., L.R.C.S., Senior Assistant Physician Meath Hospital, 22 Merrion-square, Dublin.

† Lentaigne, John, F.R.C.S., Surgeon Mater Misericordiæ Hospital, 5 Upper Merrion-street, Dublin. [1]

1897 Letters, Patrick, M.D., Valentia Island.

1898 Lindsay, James A., M.D., R.U., 13 College-square, E., Belfast.

† Little, James, M.D., F.R.C.P., Regius Professor of Physic Univ. Dubl., ex-President Royal College of Physicians, 14 St. Stephen's green, North, Dublin.

1897 Lumsden, John, M.D. B.Ch., B.A.O., Dub., Physician to Mercer's Hospital, 4 Fitzwilliam-place, Dublin.

1884 Lush, William Vawdrey, M.D., F.R.C.P., Lond., F.R.C.S., Eng. Physician to the Dorset County Hospital, 12 Frederick-place, Weymouth.

† Macan, Sir Arthur V., M.B., M.A.O., F.R.C.P., Professor of Midwifery T.C.D., 53 Merrion-square, Dublin.

† M'Ardle, John Stephen, F.R.C.S., Surgeon St. Vincent's Hospital and the Mullen Convalescent Home, 7 Merrion-street, Upper, Dublin. [1]

1887 M'Causland, Richard Bolton, F.R.C.S., Surgeon Steevens' Hospital, 79 Merrion-square, Dublin.

1891 M'Donnell, Hercules Henry, M.D., M.Ch., Surgeon Louth County Infirmary, Dundalk. [*Resigned*]

1899 M'Evoy, Thomas, L.R.C.P. & S., 1 Prince Edward-terrace, Blackrock, Co. Dublin.

1895 M'Hugh, Michael, M.A., M.D., Univ. Dub., L.R.C.S., Physician St. Vincent's Hospital, 25 Harcourt-street, Dublin.

1902 M'Kisack, H. L., M.D., 15 College-square, Belfast.

1903 McVittie, R. B., M.D., 62 Fitzwilliam-square, Dublin.

1887 McWeeney, E. J., M.D., M.Ch., Pathologist Mater Misericordiæ Hospital, 84 St. Stephen's-green, Dublin. [3]

1901 Magennis, E., M.D., 37 Harcourt-street, Dublin.

1900 Maguire, Katharine M. N., M.B., B.Ch., 67 Merrion-square, South, Dublin.

1883 Marques, L. Pereira, M.R.C.P., L.R.C.S., late Medical Officer Victoria Gaol Hospital, Macao, China.

† Martin, William James, M.D., F.R.C.P., Edin., Physician Jervis-street Hospital and St. Joseph's Infirmary for Children, 17 Harcourt-street, Dublin.

1896 Martley, Francis C., M.A., M.D., Camb., M.R.C.S. Eng. & L.R.C.P. Lon., late House Physician St. Mary's Hospital, Anæsthetist to Steevens' Hospital, 32 Upper Merrion-street, Dublin.

1897 Maunsell, R. Charles B., M.B., B.Ch., B.A.O., Dub., F.R.C.S.I., Surgeon to Mercer's Hospital, 32 Lower Baggot-street, Dublin.

† Meldon, Austin, D.L., F.R.C.S., ex-President Royal College of Surgeons, Surgeon Jervis-street Hospital, 15 Merrion-square, N., Dublin.

1902 Meldon, G. Pugin, L.R.C.P. & S., 15 Merrion-square, Dublin.

1883 Middleton, William Henry, L.R.C.S., Surgeon Westmeath Co. Infirmary, Mullingar, Co. Westmeath.

1894 Mills, W. T., L.R.C.P. & S., Medical Officer, Dispensary, Rhode, King's County.

1 01 Mitchell, A. B., F.R.C.S., 4 College-square, Belfast.

† Montgomery, Alexander Nixon, F.R.C.P., Secretary Vaccination Department, Local Government Board, 45 Upper Sackville-street, Dublin.

1894 Montgomery, Robert John, M.A., M.B. Univ. Dubl., F.R.C.S., Ophthalmic Surgeon Drumcondra Hospital, Assistant Surgeon Royal Victoria Eye and Ear Hospital, 4 Gardiner's-row, and 18 Westland-row, Dublin.

1897 Mooney, H. C., M.B., F.R.C.S., 22 Lower Baggot-street, Dublin.

† Moore, Charles Frederick, M.D., F.R.C.S., Certifying Surgeon, Medical Inspector of Seamen, 10 Upper Merrion-st., Dublin.

1894 Moore, Henry, L.R.C.P. & S., Surgeon Royal City of Dublin Hospital, 40 Lower Baggot-street, Dublin.

† Moore, Sir John William, M.D., F.R.C.P., Physician Meath Hospital, Professor of Practice of Medicine Royal College of Surgeons, 40 Fitzwilliam-square, West, Dublin.

† Moore, Robert Henry, F.R.C.S., Surgeon-Dentist-in-Ordinary to His Excellency the Lord Lieutenant, 29 Upper Merrion-street, Dublin.

1901 Moorhead, George, F.R.C.S., Tullamore.

1897 Morrison, F. Saunderson, F.R.C.S., Hallaton, Leicestershire.

1883 Murphy, John, F.R.C.P., L.R.C.S., Physician, Mater Misericordiæ Hospital, 13 Merrion-square, Dublin.

† Murphy, John Joseph, L.R.C.P., Ed., 18 Harcourt-street, Dublin.

1886 Myles, Sir T., F.R.C.S., Surgeon Richmond Hospital, 33 Merrion-square, Dublin. [1]

1902 Neville, W. C., M.D., M.A.O., F.R.C.P., Pathologist Rotunda Hospital, 70 Lower Mount-street, Dublin.

† Nixon, Sir Christopher, M.D., F.R.C.P., Physician to Mater Misericordiæ Hospital, 2 Merrion-square, N., Dublin.

1889 Nolan, Michael James, L.R.C.P., L.R.C.S., Resident Medical Superintendent Down District Lunatic Asylum, Downpatrick.

1885 Norman Conolly, F.R.C.P., Medical Superintendent Richmond District Lunatic Asylum, Dublin. [2]

1899 O'Brien, C. M., M.D., L.R.C.P., Physician to City Hospital for Diseases of the Skin, 29 Merrion-square, Dublin.

† O'Carroll, Joseph Francis, M.D., F.R.C.P., Physician Richmond Whitworth, and Hardwicke Hospitals, 43 Merrion-square, Dublin. [1]

1883 Olpherts, J. Wybrants, M.D., Medical Officer Downpatrick Dispensary District, The Villas, Downpatrick.

1900 O'Neill, Henry, M.D., M.Ch., J.P., Consulting Surgeon Royal Victoria Hospital, Curator Museum of Sanitary Science, 6 College-square, Belfast.

1883 O'Neill, William, M.D., M.R.C.P. Lond., Physician Lincoln Lunatic Hospital, 2 Lindum-road, Lincoln.

† Ormsby, Sir Lambert Hepenstal, M.D., F.R.C.S., Surgeon Meath Hospital, Surgeon National Orthopædic and Children's Hospital, 92 Merrion-square, West, Dublin.

1894 O'Sullivan, A. C., M.D., F.T.C.D., Lecturer on Pathology Trinity College, Pathologist Richmond Hospital, Dublin.

† Oulton, Henry W., M.D., Dubl., F.R.C.S.I., Chief Surgeon Dublin Metropolitan Police, 17 Upper Fitzwilliam-street, Dublin.

1893 Parsons, Alfred Robert, M.D. Univ. Dublin, F.R.C.P., Physician City of Dublin Hospital, 27 Lower Fitzwilliam-street, Dublin.

1900 Patten, Charles J., M.D., B.Ch. Dub., University College, Sheffield.

1895 Peacocke, George, M.D., F.R.C.P.I., 14 Lower Fitzwilliam-street, Dublin. [1]

1887 Pearson, Charles Yelverton, M.D., F.R.C.S. Eng., Professor of Materia Medica Queen's College, 1 Sydney-place, Cork.

† Pechey-Phipson, Mary Edith, M.D., L.R.C.P., Dasak Bungalow, Nasik-road, Bombay.

1901 Penny, Alfred Ferguson, L.R.C.P. & S., Hon. Visiting Physician Chelsea Prov. Dispensary, 10 Oakley-street, Chelsea.

† Pollock, James Ferrier, M.D., F.R.C.P., Medical Officer Meath Industrial Schools, Avoca House, Blackrock.

1885 Potter, Henry, F.R.C.S., Brigade Surgeon Indian Army, Dartmouth, Dartry-road, Up. Rathmines, Co. Dublin.

1901 Powell, Caleb J., F.R.C.S., Visiting Surgeon, North Dublin Union Dispensary, 30 Harcourt-street, Dublin.

† Pratt, Joseph Dallas, M.B., F.R.C.S., Surgeon, Jervis-street Hospital, 25 Lower Fitzwilliam-street, Dublin.

1895 Price, Arthur George, M.B., B.Ch. Univ. Dubl., Greystones.

† Purefoy, Richard Dancer, F.R.C.S., Master Rotunda Hospital, Rutland-square, Dublin. [2]

1902 Purser, Frank C., M.D., B.Ch., B.A.O., Pathologist Dr. Steevens' Hospital, 20 Lower Baggot-street, Dublin.

† Purser, John Mallet, M.D., F.R.C.P., 3 Wilton-terrace, Dublin. [*Resigned*]

† Redmond, Joseph Michael, M.D., F.R.C.P., Physician to Mater Misericordiæ Hospital, Senior Physician to Cork-street Fever Hospital, 41 Merrion-square, Dublin.

1903 Ridley, George P., L.R.C.P., L.R.C.S., Surgeon King's Co. Infirmary, Tullamore.

1891 Roche, Anthony, M.R.C.P., L.R.C.S., Professor of Medical Jurisprudence and Public Health Catholic University Medical School, 60 Lower Baggot-street, Dublin.

1892 Rutherford, William, M.D., F.R.C.P. Edin., Visiting Physician District Asylum, Ballinasloe.

1900 Scott, C. Bennett, M.D., B.Ch., B.A.O. Dub., Rockingham, Kingstown, Co. Dublin.

† Scott, John Alfred, M.D., F.R.C.S., Professor of Physiology Royal College of Surgeons, 36 Lower Baggot-street, Dublin.

1897 Scully, Reginald W., L.R.C.P. & S., 39 Upper Fitzwilliam-street, Dublin. [*Resigned*]

1900 Sinclair, F. Howard, M.D., Rostrevor Sanatorium.

1886 Smith, Alfred J., M.B., Gynæcologist St. Vincent's Hospital, 30 Merrion-square, Dublin. [1]

1895 Smith, R. Travers, M.B., B.Ch., Univ. Dub., 20 Lower Fitzwilliam street, Dublin.

1901 Smith, Trevor N., M.D., 34 Upper Fitzwilliam-street, Dublin.

† Smith, Walter George, M.D., ex-President R.C.P., King's Professor of Materia Medica School of Physic, and Physician to Sir Patrick Dun's Hospital, 25 Merrion-square, Dublin.

† Smyly, Sir Philip Crampton, M.D., F.R.C.S., Surgeon Meath Hospital, Surgeon to the Hospital for Throat and Ear Diseases, 4 Merrion-square, North, Dublin.

† Smyly, William Josiah, M.D., F.R.C.P., late Master Rotunda Lying-in Hospital, 58 Merrion-square, S., Dublin. [1]

1903 Staunton, Michael C., M.D., B.Ch., B.A.O. R.U.I., Visiting Surgeon Children's Hospital, Temple-st, 22 Nth. Frederick-street, Dublin.

† Stoker, Sir Thornley, M.D., late President R.C.S., Surgeon Richmond Hospital, Surgeon Swift's Hospital for Lunatics, 8 Ely-place, Dublin.

1902 Stoker, Graves, F.R.C.S., 46 Rutland-square, Dublin.

† Story, John Benjamin, M.B., F.R.C.S., Surgeon Royal Victoria Eye & Ear Hospital, Ophthalmic and Aural Surgeon Steevens' Hospital, Professor of Ophthalmic and Aural Surgery R.C.S. 6 Merrion-square, N., Dublin. [2]

1889 Story, W. G., M.B., B.Ch., 8 Upper Fitzwilliam-street, Dublin.

1900 Strahan, Michael, L.R.C.S., Medical Officer No. 2 North City Dispensary District, 38 Rutland-square, Dublin.

1902 Stritch, Geo. S. Russell, L.R.C.P. & S., Ed., L.F.P. & S., Gl., Resident Medical Officer Westmorland Lock Hospital, Dublin.

† Swan, Robert Lafayette, F.R.C.S., Surgeon Steevens' Hospital and Dublin OrthopædicHospital, 32 St. Stephen's-green, N., Dublin.

† Swanzy, Henry Rosborough, M.B., F.R.C.S., Surgeon Royal Victoria Eye & Ear Hospital, Dublin, Ophthalmic Surgeon Adelaide Hospital, 23 Merrion-square, North, Dublin.

1893 Symes, Wm. Langford, F.R.C.P., M.D., Assistant Physician Dublin Orthopædic Hospital, Physician Homes for Destitute Children, 74 Merrion-square, South, Dublin.

1893 Symington, Johnston, M.D., Edin., Professor of Anatomy Queen's, Coll., Belfast.

1895 Taylor, Edward Henry, M.B., B.Ch., Univ. Dub., F.R.C.S., Surgeon Sir Patrick Dun's Hospital, 29 Lower Baggot-street, Dublin. [1]

1898 Taylor, William, F.R.C.S., Surgeon Meath Hospital, Demonstrator of Anatomy and Operative Surgery R.C.S., 32 Harcourt-st. Dublin

1887 Thompson, S. M., L.R.C.P., L.R.C.S., 34 Harcourt-street, Dublin.

1897 Thompson, W. H., M.D., F.R.C.S. Eng., Professor of Institutes of Medicine, Trinity College, Dublin.

1894 Thompson, W. J., M.D. Univ. Dublin, Physician Jervis-street Hospital, 27 Harcourt-street, Dublin.

† Thomson, Sir William, C.B., F.R.C.S., ex-President R.C.S., Surgeon Richmond Hospital, 54 St. Stephen's-green, E., Dublin. [1]

1892 Thunder, Edmund, L.R.C.P. & S., Newbridge, Co. Kildare.

1891 Tichborne, Charles Robert Clarke, LL.D., L.R.C.S., Professor of Chemistry, Pharm. Society, Ireland, 15 North Great George's-street, Dublin.

† Tobin, Richard Francis, F.R.C.S., Surgeon St. Vincent's Hospital, 60 St. Stephen's-green, Dublin.

1889 Todd, H. Ross, L.R.C.P., L.R.C.S., Bembridge House, Bembridge.

1893 Tweedy, Ernest Hastings, L.R.C.P., L.R.C.S., late Assistant Master Rotunda Hospital, 71 Lower Baggot-street, Dublin. [2]

1900 Tweedy, Herbert, L.R.C.P. & S., Colonial Surgeon, 71 Lower Baggot-street, Dublin.

† Usher, Isaac William, L.R.C.S., Medical Officer Dundrum No. 1 Dispensary, Rathdown Union, Tudor House, Dundrum, Co. Dublin.

1901 Watson, Edward J., M.D., B.Ch. B.A.O. Dub., L.R.C.P., Anæsthetist and Medical Officer in Charge of the X-ray Department Sir P. Dun's Hospital, Demonstrator in Anatomy T.C.D., 25 Fitzwilliam-place, Dublin.

1902 Wayland, R. S., F.R.C.S., 54 South Richmond-street, Dublin.

1901 Westropp, H. G., L.R.C.P. & S., 15 Strand-road, Sandymount.

1900 White, Arthur H., Professor of Pathology Royal College of Surgeons, Derrybawn, Rathgar.

1902 White, Reginald J., F.R.C.S., L.R.C.P., Assistant Master National Maternity Hospital, Holles-street, Dublin.

1898 Wigoder, Selik, M.D. Leipzig, L.R.C.P. & S. Edin., 5 Harrington-street, Dublin.

1892 Wilkinson, John W., L.R.C.S. & P., late Assistant Surgeon Richmond Hospital, 5 Usher's-island, Dublin. [*Resigned*]

1894 Wilson, T. Henry, M.R.C.P., late Asst. Master Rotunda Lying-in Hospital, 33 Upper Merrion-street, Dublin.

1899 Wilson, G. O'Keeffe, F.R.C.S., Physician, Drumcondra & Cork-street Fever Hospital, 34 North Frederick-street, Dublin.

1898 Winter, W. A., M.D., B.Ch., Dub., 2 Upper Leeson-street, Dublin.

1893 Woods, Robert H., M.B. Univ. Dub., F.R.C.S., Throat Surgeon Richmond Hospital, 39 Merrion-square, Dublin.

1894 Wynne, Albert E., L.R.C.P. & S. Edin., late House Surgeon Mercer's Hospital, 187 Great Brunswick-street, Dublin.

1884 Yourell, M. J., M.R.C.P., 21 Northbrook-road, Dublin.

MEMBERS.

1900 Beatty, Elizabeth, L.R.C.P. & S., L.F.P. Glasgow, 18 Upper Merrion-street, Dublin.

† Boyce, Jos. W., M.B., Medical Officer Blackrock Dispensary District, St. Kilda, Blackrock, Co. Dublin.

1902 Boyce, C. R., L.R.C.P. & S., National Eye & Ear Hospital, Dublin.

1897 Boyd, Alfred E., M.B., 53 Harcourt-street, Dublin.

1897 Burnes, Rudolph A. C., M.B., B.Ch., Dub., 1 St. John's-terrace, N. C. Road Dublin.

1902 Cahill, Francis, L.R.C.P. & S., Medical Officer Dundrum Dispensary District, Co. Dublin.

1887 Cope, Geo. Patrick, L.R.C.P., L.R.C.S., late Assistant Resident Medical Superintendent Richmond District Lunatic Asylum, Medical Officer No. 3 Dispensary District, South Dublin Union. 36 Harcourt-street, Dublin.

1900 Cullinan, Henry, L.R.C.P. & S., Richmond Asylum, Dublin.

1892 Day, J. Marshall, M.B., Univ. Dublin, Resident Medical Officer Cork-street Fever Hospital, Dublin.

† Delahoyde, J. O'Connell, L.R.C.S., Medical Officer No. 2 District North Dublin Union, 47 Rutland-square, Dublin.

1894 Eustace, H. M., M.D., B.Ch. Univ. Dublin, Asst. Physician Highfield Private Lunatic Asylum, Hampstead, Glasnevin.

1897 Fleury, Eleonore Lilian, M.D., R.U.I., Richmond District Asylum, Dublin.

1900 Goff, A. S., L.R.C P. & S., Lynton, Dundrum.

1889 Goulding, H. Benson, L.R.C.P., Edin. F.R.C.S., 16 Rathmines-road.

1900 Harvey, Robert James, L.R.C.P. & S., Assistant Surgeon, Richmond Hospital, 1 Rutland-square, Dublin.

1898 Hatch, Richard, L.R.C.P. & S., 166 Pembroke-road, Dublin.

1897 Hughes, Charles, L.R.C.P. & S., 27 Westland-row, Dublin.

1902 Lambe, Francis W., M.B., B.Ch. B.A.O. R.A.M.C., Officer's Mess. Curragh Camp, 7 Prince Arthur terrace, Leinster-square, Rathmines.

1892 M'Grath, James Joseph, L.R.C.S., L.A.H., Dunfanaghy, Co. Donegal.

1901 Macrory, Elizabeth, M.B., B.Ch. Edin., L.M. Coombe, 72 Lower Leeson-street, Dublin.

1900 Matson, J. Agar, M.D., B.Ch., Dub., 16 North Great George's-street-Dublin.

1902 Mogrhead, T. Gilman, M.B., B.Ch., School of Anatomy, T.C.D. [1]

1902 Neill, Thomas, M.B., B.Ch. Dub., 69 Harcourt-street, Dublin.

1902 O'Ferrall, Lewis More, F.R.C.S., 45 St. Stephen's Green, Dublin.

1898 Redington, John, L.R.C.P. & S., Richmond Asylum, Dublin.

1885 Shaw, James, L.R.C.S., 93 Talbot-street, Dublin.

† Speedy, Albert, O., L.R.C.P., Ed., Medical Officer No. 3 Dispensary District, North Dublin Union, 28 North Frederick-street, Dublin.

1900 Tennant, Elizabeth A., L.R.C.P. & S., 15 Harrington-street, Dublin.

1895 Turner, David, L.R.C.P. & S., late Resident Medical Officer Royal Hospital for Incurables, 68 Grosvenor-road, Rathmines.

1902 Walsh, James, A., L.R.C.P. & S. Edin., 30 Westmoreland-street, Dublin.

1902 Wigham, Joseph T., Albany House, Monkstown, Co. Dublin.

STUDENT ASSOCIATES.

Baker, Lily A., 173 Rathgar-road.

Bradish, Lyndon F., 61 Grove Park, Rathmines.

Burkitt, R. W., Richmond Hospital.

Cusack, C. A., 6 North Great George's-street.

Greene, Charles Westland, 21 Gulistan terrace, Upper Mount Pleasant avenue, Rathmines.

Hargreave, Miss, 8 Upper Mount-street.

M'Quillan, J. A., 6 Nelson-street.

O'Ferrall, James More, 2 Trinity College, Dublin.

Rutherford, James Whigham, Richmond Hospital.

Rutherford, Henry Richard Charles, Richmond Hospital.

Sheill, J. Spencer, Richmond Hospital.

Woollcombe, Robert Lloyd, LL.D., 14 Waterloo-road, Dublin.

RULES.

1. The name shall be, "ROYAL ACADEMY OF MEDICINE IN IRELAND." (1887.)

Constitution.

2. The Academy shall consist of Fellows, Honorary Fellows, Members, and Student Associates.

Management.

3. The affairs shall be managed by a Council, consisting of the President, Ex-Presidents (1893), the six Presidents of Sections, the General Secretary and Treasurer, the Secretary for Foreign Correspondence, six Secretaries of Sections, and eight Councillors, being two representatives from the Medical, Surgical, Obstetrical, and Pathological Sectional Councils respectively.

Meetings.

4. The Meetings shall be General and Ordinary.

Publication of "Transactions."

5. The "Transactions" shall be published by the Council, subject to the provisions hereinafter contained.

Original Fellows and Members.

6. All the Members of the present Societies (Medical, Surgical, Obstetrical, and Pathological) shall be Original Fellows or Members, without entrance fee, on payment of the annual subscription on or before 31st December, 1882.*

Fellows.

7. Fellows of the Royal College of Physicians of Ireland, and of the Royal College of Surgeons in Ireland, shall be admitted, without ballot, on payment of the entrance fee and the subscription for the current year. All others, being Registered Medical Practitioners not directly or indirectly engaged in the sale of drugs, shall be proposed by two Fellows, and elected by ballot by the Council.

8. Candidates shall be proposed at one Meeting of the Council, and balloted for at the next—one black bean in four to reject.

8A. That all Rules referring to the admission of Fellows, Members, and Student Associates shall be interpreted as referring to Ladies as well as Gentlemen.

* Those who have paid a Life Subscription to any of the above Societies will be admitted to the privilege of Fellows on payment of Member's subscription.

Privileges of Fellows.

9. Fellows only shall be eligible for office in the Academy. They shall have the privilege of attending all Meetings of the Academy, of making Communications, and of voting and speaking at such meetings. They shall also receive a copy of the "Transactions."

10. These privileges shall not be exercised by any Fellow in arrear with his subscription.

Honorary Fellows.

11. Honorary Fellows, limited in number to 25, may be nominated by the Council, and elected, on motion at a General Meeting of the Academy by a majority of at least two-thirds of those present and voting.

Members.

12. Any Registered Medical Practitioner may be elected as a Member, the election to be conducted in the same manner as that of Fellows.

Privileges of Members.

13. Members shall have the privilege of attending the Ordinary Meetings of the Academy, of making Communications, and of taking part in debate. They can purchase the "Transactions" at cost price.

Student Associates.

14. Registered Medical Students may be elected Student Associates for the period of one year. The Subscription must be paid before election, and the Council may elect without notice of motion.

15. Student Associates shall have the privilege of attending the Ordinary Meetings of the Academy.

Annual Subscription.

16. Fellows shall pay £2 2s., and Members £1 1s. Student Associates shall pay 5s. The Subscription shall become due on the 1st of October in each year, and if the Subscription be not paid on or before the first Meeting in February, the defaulter shall cease to belong to the Academy, unless the delay shall be accounted for to the satisfaction of the Council. No Fellow shall vote at the Annual General Meeting who has not paid his subscription for the year. Medical Officers of the Army and Navy and Registered Medical Practitioners not residing within fifteen miles of Dublin are eligible as Fellows of the Academy on payment of the entrance fee, and annual Subscription of £1 1s.

Entrance Fee.

17. After admission of Original Fellows, all Fellows shall pay an entrance fee of £1 1s.

Council.

18. The Council shall meet on the first Wednesday in the month throughout the Session, or oftener should they see occasion—five to form a quorum.

19. Notice of all Extraordinary Meetings shall be transmitted by the Secretary to every Member of the Council. The President or any five Members of Council may call an Extraordinary Meeting of the Council. The Council shall determine questions by vote, or by division if so demanded, the President having a casting vote only. Any regulation of the Council shall have the force of a law, until submitted to the next General Meeting. The Council shall have the power of filling up any vacancies which may occur in the list of Officers of the Academy, except that of President, before the Annual General Meeting. If a vacancy in the office of President should occur, the General Council shall summon a Special General Meeting of the Academy to fill such vacancy. (1888.)

Sectional Councils.

20. There shall be six Sectional Councils elected by the Annual General Meeting in October, termed respectively—the Medical, the Surgical, the Obstetrical, the Pathological, the State Medicine, and the Anatomical and Physiological Councils.

21. No Fellow shall be eligible as a candidate for election on more than two Sectional Councils, and no Fellow shall be eligible as a candidate for election on both the Medical and Surgical Sectional Councils. (1888.)

22. Each Sectional Council shall consist of the President of the Section and ten Members, one of whom shall act as Secretary to the Section; except the State Medicine and Anatomical and Physiological Councils, which shall each consist of a President and six Members. (1888.)

Meetings of Sectional Councils.

23. Each Sectional Council shall meet on a fixed day at least one week before the Ordinary Meeting of their Section, three to form a quorum.

Powers.

24. Each Sectional Council shall have the power of making any such arrangements as it thinks necessary to carry on the work of the Ordinary Meetings which are under its charge, provided that such arrangements do not interfere with the general laws of the Academy; and any Rules laid down by such Council shall have the force of laws at the Ordinary Meetings under its charge, until submitted to the General Council.

25. Each Sectional Council shall have the power of filling up any vacancies that may occur among its Members until the Annual General Meeting.

Committee of Reference.

26. The Council shall appoint a Committee of Reference, to report upon morbid growths and other specimens exhibited before the Academy; of this Committee the Exhibitor shall, for the occasion, be a Member.

Officers.

27. A President, to be elected by the Annual General Meeting in October, and to hold office for three years.

28. The Presidents of the College of Physicians and Surgeons for the time being shall be the Presidents of the Medical and Surgical Sections. The Presidents of the other Sections shall be elected by the Fellows at the Annual General Meeting, and shall hold office for two years. (1888.)

29. One General Secretary and Treasurer to be elected at the Annual General Meeting.

30. It is expedient that a fixed salary (of one hundred guineas) shall be paid yearly to the General Secretary in consideration of the fact that the editing of the "Transactions" is part of his duties.

31. One Honorary Secretary for Foreign Correspondence to be elected at the Annual General Meeting. (1888.)

32. The Councillors for each Section to be elected at the Annual General Meeting. Each Sectional Council shall elect two Members to act on the General Council, except in the case of the Sections of State Medicine and Anatomy and Physiology. (1888.)

33. Two Members in each Sectional Council shall retire annually, and be ineligible for re-election for one year, except in the Council of the Section of Anatomy and Physiology, in which only one shall retire. (1896.)

34. Six Secretaries, one for each Section, to be appointed by the Sectional Councils.

35. At all elections after the year 1882, any Fellow desirous of nominating a candidate for election shall, *at least one fortnight before the Annual General Meeting,* forward an application to the General Secretary to enter the name of such Fellow on the list of candidates for office, provided that the Fellow so nominated shall have consented to act. (1891.)

36. That all elections shall be by ballot, but Fellows residing more than 15 miles from Dublin and those incapacitated by illness (to be certified) may record their votes by ballot papers, sent to the presiding officer in sealed envelopes provided for that purpose. (1896.)

37. That in all elections to the Sectional Councils there shall be affixed to the name of each candidate the number of meetings of that particular Section for the Council for which he is now a candidate that he has attended. (1898.)

Duties of Officers.

38. *The President* shall preside at the Annual and Special General Meetings and at General Council Meetings. In the absence of the President, the Chairman shall be appointed by the Meeting. (1888.)

39. *The Presidents of Sections* shall preside at the Ordinary Meetings of the Academy, and shall also preside at the Sectional Council Meetings. In the absence of the President, the Chairman shall be appointed by the Meeting. (1888.)

40. *The General Secretary* shall attend all General Meetings of the Academy and General Council. He shall take minutes of such meetings, to be read at the following meeting.

41. He shall receive and have charge of all papers intended for publication in the "Transactions" of the Academy, after they have been handed over to him by the Secretaries of the several Sections

42. He shall, on receiving notice from the Secretary of a Section, send out to all the Members notices of the title or titles of the paper or papers for the next Ordinary Meeting, with the name or names of the authors, and, so far as possible, of the subjects for Exhibition, with the names of the Exhibitors.

43. He shall arrange for the Exhibition of specimens and the reading of papers, which are to be forwarded to the Academy by those who are absent, or are not members.

44. The General Secretary and Treasurer shall receive all moneys, and lodge the same in bank to the account of the Academy, and all cheques shall be signed by the Treasurer and one other Councillor.

45. The Accounts shall be audited by two Fellows, not Members of Council, to be appointed by the President at some meeting previous to the Annual Meeting.

Duties of Secretaries of Sections.

46. To attend the Meetings of the Council of the Section and the Ordinary Meetings of the Academy, under the management of said Council, and to take minutes at such meetings, to be read at the next following meeting of that Section.

47. To keep such papers as the Sectional Councils recommend for publication, for the purpose of handing them over to the General Secretary.

48. To inform the Secretary of the Committee of Reference of any specimens referred to that Committee, and to transfer the specimens to that Secretary.

49. To give notice to the General Secretary, one week previously to the meeting, of the titles of papers for the evening, the names of the authors, and, so far as possible, the objects for Exhibition, with the names of Exhibitors, so that the General Secretary may inform the Members.

Meetings.

50. The Annual General Meeting to take place on the last Friday in October, for the election of Officers and Members of Council and for the general business of the Academy.

51. Due notice of the meeting shall be given by the Secretary to all Members at least three weeks previously. (1891.)

52. No motion involving a change of these Rules shall be brought before this meeting except one week's notice thereof shall have been given by the Secretary to each Member.

53. The President may—and shall forthwith, on receiving a requisition signed by seven Fellows, at any time—on giving one week's notice, summon a Special General Meeting, for the consideration of particular business, the nature of which must be specified in the letter of summons convening the meeting, and at such meeting no other business can be transacted. In the event of the President being unable, from any cause, or declining, to summon a Special General Meeting of the Academy, it shall be in the power of the General Council to summon such meeting. (1888.)

Ordinary Meetings.

54. The communications to be submitted to the Ordinary Meetings shall be grouped under the following heads:—Medicine, Surgery, Pathology, Obstetrics, State Medicine, and Anatomy and Physiology; and the conduct of such meetings shall be in the hands of the several Sectional Councils, each Sectional Council to have the management of the Ordinary Meeting in rotation, as arranged by the General Council. (1888.)

55. The Ordinary Meetings shall be held on every Friday evening, from the first Friday in November until the last Friday in May, inclusive, at eight o'clock, except during the Christmas and Easter recesses.

56. All Fellows, Members, and Student Associates attending the meetings, shall write their names in the attendance book.

57. Any Fellow or Member may introduce two Visitors by cards obtained from the Sectional Secretaries.

58. Officers of the Army or Navy Medical Departments shall, on presenting their cards, be admitted to the Ordinary Meetings of the Academy.

59. No communication shall exceed twenty minutes in its delivery, nor any speech thereon ten minutes, except by permission of the Chairman. No one shall speak twice upon the same communication, except the author, who has the right of reply.

60. A paper by any other than a Fellow or Member of the Academy shall not be read before the Academy unless the author of such a communication shall have obtained permission to do so from the Council of the Section before which the communication is proposed to be read. (1892.)

Ordinary Meetings.—Order of business.

61. (1.) Chair to be taken at 8.30 p.m.

(2.) Chairman to read list of specimens, etc., exhibited by card, together with the names of the Exhibitors.

(3.) No Pathological Specimen shall be exhibited at any Section other than the Pathological and Obstetrical, except by card. This Exhibition shall not exclude any subsequent communication regarding it at the Pathological Section.

(4.) There shall be no Exhibition of Specimens by card in the Pathological Section.

(5.) Any Member shall have liberty to exhibit any recent specimen at any of the meetings of the Obstetrical Section, provided it illustrates any question in gynæcology.

(6.) At the meetings of the Obstetrical Section recent specimens may be exhibited, and the President may invite discussion thereon, provided that such exhibition of specimens or discussion, if any, thereon must terminate at 9 o'clock, p.m., but that, if necessary, they may be resumed after the papers for the evening have been read and discussed.

(7.) Chairman to ask if any Member has any observations to make or motion to propose relative to any living specimen on the List of Exhibition.

(8.) Chairman to call upon the author of the first paper on the list to read his paper.

(9.) Chairman to call upon members to discuss the paper, or, at his discretion, to take any other paper or papers on the list relating to the subject, and have the discussion subsequently on all such papers collectively.

(10.) When the last paper has been discussed, the Chairman to ask if any member desires to speak upon any of the specimens exhibited by card.

(11.) After the discussion upon any specimen, the Exhibitor has the right of reply

Regulations regarding the Exhibition of Specimens by Card.

62. (1.) Any member may exhibit by card at any Ordinary Meeting, except at the meeting of the Pathological Section. At the meetings of the Pathological all specimens must be presented and described *viva voce*, and debate may be invited thereon.

(2.) Notice shall, if possible, be given to the General Secretary, or the Secretary of the Section, on or before the previous Ordinary Meeting.

(3.) Specimens must be in the room at 7.45 on the night of Exhibition.

(4.) Specimens for Exhibition by card shall be open for inspection at 8 p.m.

(5.) A card, containing all particulars for publication, shall be placed with the Specimen. Cards for this purpose are to be obtained from the Secretary.

(6.) The Exhibitor should be present, and he shall furnish further details if asked for.

(7.) Every Exhibitor shall submit the Specimen or Specimens on view to the Committee of Reference, if the meeting so decide.

Exhibition of Pathological Specimens.

63. No lengthened reference to treatment shall be allowed upon any Specimen, except by the express permission of the Chairman. Whenever it has been agreed that a Specimen exhibited at a Sectional Meeting of the Royal Academy of Medicine in Ireland shall be sent to the Reference Committee to report thereon as to its nature, the Exhibitor is to retain the custody of the specimen until he shall be summoned to a meeting of said Committee to be convened by its Secretary, on an early day, when he will attend and submit it for examination. (1889).

By-laws concerning "Transactions."

64. The "Transactions" shall consist of such communications made to the Academy by or through Fellows or Members as may be deemed by the General Council suitable for publication; also, of discussions of importance or interest arising out of such communications.

65. All communications accepted by the Academy become the property of the Academy, but authors may also print their Communications, subsequent to the reading of the same before the Academy, in any publication in addition to the "Transactions." Papers shall be handed to the Secretary of the Section immediately after they have been read. (1891.)

66. The "Transactions" for the year shall be presented to all Fellows of the Academy who have paid their Annual Subscriptions.

67. The "Transactions" may be purchased by Members at cost price.

68. The Publication Committee of each Section shall meet not later than the Tuesday after each meeting of the Section, for the purpose of abstracting the proceedings—the abstract to be placed in the printer's hands on same evening, and forwarded to the editors of medical journals with the least possible delay. (1888.)

69. Contributors of papers may send their papers to the Academy printer early enough to allow of their being put in type before the meeting, provided the author be responsible for the cost of same should the General Council deem the communication not suitable for publication in the "Transactions."

70. That on the evening of the day of meeting of the Sectional Council, when the papers for the next meeting have been decided upon, a circular be sent to each contributor informing him:—

(1.) That he is expected to be ready or else take his place at the bottom of the list.

(2.) That he must have an abstract ready with his paper, otherwise he will be noted in the published proceedings in such form as the Publication Committee think fit.

71. The General Council is empowered to defray the expenses in whole or in part of any illustrations which it may consider advantageous to the elucidation of the papers published by the Academy

72. An abstract (prepared by the author) of each communication made at the Academy, along with a report of the discussions thereon, shall be furnished to the editors of such medical journals as may desire to publish them, and the authors of such communications shall be empowered to publish their papers *in extenso* in any periodical or periodicals they may think fit, such communications also to appear in the "Transactions," provided the Council consider them worthy of insertion.

Expulsion of Fellow or Member.

73. Expulsion of a Fellow or Member can take place only at a General Meeting of the Academy, on the motion of the Council, if two-thirds of the Members present shall vote for the same by ballot. Of such ballot the Council must give at least fourteen days' notice in writing to every Fellow of the Academy.

New Laws.

74. New Laws, or alterations in existing Laws, can be proposed only at the Annual General Meeting. Any Fellow proposing such alteration shall give notice to the General Secretary at least ten days before the General Meeting in October.

REPORT

THE General Council begs to report that the number of Fellows for the Session 1901-1902 was 237: of Members, 35; and of Student Associates, 15. The Fellows increased by 10; the Members increased by 3; and the Student Associates increased by 5.

The financial position of the Academy has occupied the serious consideration of your Council, and the Council regrets that the amount of the overdraft on the bank has not been reduced during the past session, notwithstanding an increase in the subscriptions and sundry economies in the expenditure. The subscriptions this year amount to £494 2s., as against £469 15s. in the Session 1900-01, and the following items of expenditure are less than in that session:—Reporters, £17 10s., against £28 7s.; refreshments at meetings, £13 15s., against £19 4s. 3d.; printing and postage, £61 10s. 2d., against £100 1s.

The gain from these items has, however been neutralised by the cost of the TRANSACTIONS, £185 5s. 2d., against £171 13s. 8d. and a further sum of £70 11s. has been paid for illustrations which appeared in the TRANSACTIONS of Session 1899-1900.

The General Secretary reports to the Council that from an inspection of the balance sheets of the past seven sessions it appears that the average income of the Academy amounts to about £500, while the average expenditure for the same period is a little over £506. In these seven years, however, there is included an expenditure of £100 for microscopes and £50 subscription to a Health Congress, so that the average routine expenditure does not amount to much more than £485. This gives the Academy an average surplus of about £15. The Council therefore anticipates that the overdraft due to bank will be all paid off in six years, if no extraordinary expenses are incurred and due economy is exercised.

One extraordinary item of expenditure is, however, necessary—namely, a Subject-index to the twenty volumes of TRANSACTIONS already published, as without such an Index the TRANSACTIONS are almost useless for purposes of reference. The Council has therefore arranged with one of the Fellows for the sum of 25 guineas to make this most important index, which will greatly enhance the value of the TRANSACTIONS as a work of reference.

The Council records with regret the loss the Academy has sustained by the deaths of the following Fellows:—E. C. Hodgson, T. More Madden, (formerly President of the Obstetrical Section and an original Fellow), and Thomas A. G. White.

In common with all branches of the Profession of Medicine throughout the world, the Academy has to deplore the death of Professor Rudolf Ludwig Karl Virchow, the most illustrious name upon the beadroll of its Honorary Fellows. The famous Professor of Pathological Anatomy in the University of Berlin was elected an Honorary Fellow of the Royal Academy of Medicine in Ireland in 1885, and it is fitting that the Academy should pay a tribute of respect to the memory of the mighty dead.

General Treasurer's Report for the Session 1901-1902.

RECEIPTS.	£	s.	d.
To Subscriptions and Entrance Fees -	494	2	0
,, Dividends - - - -	19	6	4
,, Overdrafts on Bank - - -	81	19	6
,, Cheque outstanding - - -	2	2	0
Total - - - -	£597	9	10

EXPENDITURE.	£	s.	d.
By Balance due to Bank - - -	73	10	6
,, General Secretary - - -	105	0	0
,, Printing, Stationery, and Postage -	61	10	2
,, Transactions, Vol. XIX. - -	145	6	8
,, Printing Proceedings, 1900-'1 - -	6	13	0
,, Illustrations, Vol. XVIII. - -	70	11	0
,, ,, Vol. XIX. - -	39	18	6
,, Royal College of Surgeons - -	15	15	0
,, Royal College of Physicians - -	15	15	0
,, Reporters - - - -	17	10	0
,, Servants - - - -	20	10	0
,, Groceries and Milk - - -	13	15	0
,, Lantern - - - - -	3	12	0
,, Address to Professor Virchow - -	1	1	0
,, Pathological Report - - -	2	2	0
,, National Institute for Research - -	2	2	0
,, Interest on Account - - -	2	18	0
Total - - - -	£597	9	10

We have examined the Accounts and Vouchers, and certify the same to be correct,

ARTHUR H. BENSON,
J. LUMSDEN.

11*th October*, 1902

The Capital is invested in the names of Sir George Duffey, Sir William Thomson, and Dr. Walter G Smith.

Vol. XX. of the "Transactions" has been forwarded to the following :—

IRELAND :—

Medical Press	Dublin
National Library	Do.
Royal College of Physicians	Do.
Royal College of Surgeons	Do.
Royal Irish Academy	Do.
Royal Dublin Society	Do.
Royal University	Do.
Trinity College	Do.
Queen's College	Belfast
Do.	Cork
Do.	Galway

ENGLAND :—

Birmingham Medical Review	Birmingham
Medical Institute	Do.
Bristol Medico-Chirurgical Journal	Bristol
University	Durham
Liverpool Medico-Chirurgical Journal	Liverpool
British Medical Journal	London
Jenner Institute of Preventive Medicine	Do.
Journal of Obstetrics and Gynæcology, 8, Henrietta-street, Covent Garden, W.C.	Do.
King's College	Do.
Lancet	Do.
Library, British Medical Journal, 429, Strand	Do.
Medical Magazine	Do.
Medical Review (Med. & Surg. Review of Reviews)	Do.
Public Health, 19, Bloomfield-road, Maida Vale	Do.
Royal College of Physicians	Do.
Royal College of Surgeons	Do.
University	Do.
University College	Do.
Royal Medical and Chirurgical Society, Hanover-sq.	Do.
Official Year Book of Scientific and Learned Societies of Great Britain and Ireland, Exeter-street, Strand	Do.
Victoria University	Manchester
Quarterly Medical Journal, 342, Glossop-road	Sheffield

SCOTLAND :—

University	Aberdeen
University College	Dundee
Royal College of Physicians	Edinburgh
Royal College of Surgeons	Do.
University	Do.
Faculty of Physicians and Surgeons	Glasgow
University	Do.
Do.	St. Andrew's

EUROPE :—

University	Amsterdam
Naturforschende Gesellschaft	Basel
University Library	Berlin
University College	Bologna
Académie Royale de Médecine de Belgique	Brussels
L'Année Chirurgicale	Do.

EUROPE—*con.*—

Société Belge de Chirurgie	Brussels
Université Libre	Do
University College	Christiania.
Académie de Médecine	Copenhagen
La Grèce Medicale, Syra	Greece
Finska Läkaresällskapetz	Helsingfors
University College	Madrid
Archivio di Ortopedia	Milan
Académie de Médecine	Paris
Revue de Chirurgie	Do.
University of Paris	Do.
Imperial University	St. Petersburg
Royal Carolinska Med. Chir. Institution	Stockholm
Imperial University Library	Strassburg
Archivie Italiano di Otologia	Turin
Medical Society, Royal University	Upsala
University	Vienna
Naturforschende Gesellschaft, Dr, Rudolf Martin, Seefeldstrasse 119	Zurich

AMERICA:—

Johns Hopkins University	Baltimore
Journal of Medical Research	Boston, Mass.
Brooklyn Medical Journal	Brooklyn
Magill University	Montreal
Academy of Medicine. 17, West 43rd-street	New York
New York Medical Journal, 66, West Broadway	Do.
University	Do.
Journal of Mental Pathology	Do.
Medical Brief	St. Louis, Mo.
American Journal of the Medical Sciences	Philadelphia
Association of American Physicians	Do.
College of Physicians	Do.
University of Pensylvania	Do.
University College	Quebec
University Lavel	Do.
University of Toronto	Toronto
Charlotte Medical Journal, Charlotte. N. C.	United States
Library, Surg.-General s Office, Washington	Do.
Journal of Comparative Neurology, Denison University, Granville, Ohio	Do.
Medical Library Association, 19th and Stout-streets, Denver, Colorado	Do.

AUSTRALASIA:—

University	Adelaide
Do.	Auckland
Do.	Melbourne
Inter-Colonial Medical Journal	Do.
University of Otago	New Zealand
The Australasian Medical Gazette	Sydney, N.S.W.
University of Sydney, care of Young J. Pentland, 38 West Smithfield, London, E.C.	Do.

ASIA:—

Bombay University	Bombay
University	Calcutta
Imperial University Library	Tokio, Japan

TRANSACTIONS

OF THE

Royal Academy of Medicine in Ireland.

MEDICAL SECTION.

ERYTHEMA MARGINATUM PERSTANS.*

By J. Magee Finny, M.D. (Dubl.);

Ex-President of the Royal College of Physicians, Ireland; King's Professor of the Practice of Medicine in the School of Physic, Ireland; Clinical Physician to Sir Patrick Dun's Hospital.

The case I beg to report to the Academy of Medicine is one of erythema multiforme, which, from its persistence and its peculiarities, is somewhat removed from the ordinary varieties included in the term, and because of these features I have deemed it worthy of being submitted to the members of the Academy, and have designated it under the title of "erythema marginatum perstans." [The patient was exhibited before the Royal Academy of Medicine.]

R. L., a young man, a grocer's assistant, from Banbridge, Co. Down, æt. 21, of slight build, and weighing 8 st. 7 lbs., was admitted to Sir Patrick Dun's Hospital on October 13th, 1902, suffering from a skin disease of an erythematous nature which was said to have been present for over three years.

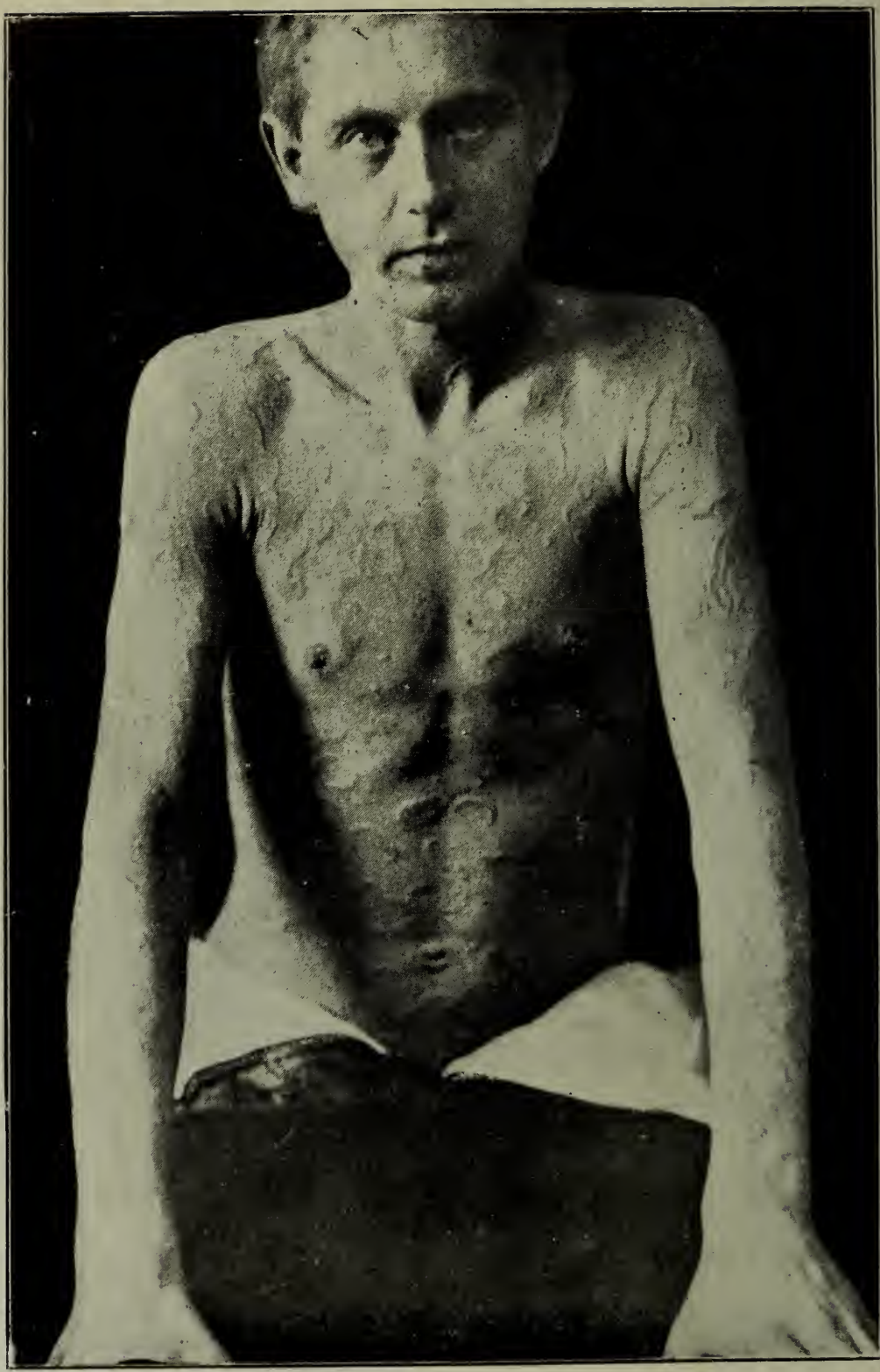
The lad's hair and face and neck were fair, while the

* Read before the Section of Medicine of the Royal Academy of Medicine in Ireland, November 2, 1902.

colour of his body and arms, and of his legs in particular, was of a darker hue—more like what a dark-skinned man might present—with a faint metallic yellow-brown lustre. Standing out from the skin were pink-red coloured elevated lines, and curves and circles and segments and spots, fairly symmetrical in distribution, occupying both the back and front of the thorax, the abdomen, the arms, and the fore-arms to the back of the wrist, and the nates, thighs and legs as far as the ankles. The palms and soles were free of spots, and the fingers and toes and dorsum of the feet were the only parts exempt. There were a few spots on the back and side of the neck, but the face, scalp, and upper part of the neck were quite free of eruption.

The spots were, some small, quarter-inch in diameter ; some large, half-inch ; distinctly raised above the skin to both sight and touch, smooth and without any vesiculation ; the colour faded a little on pressure. Again, there were coloured rings and irregular circles of half-inch to one and a half inches in diameter, and many of the spaces enclosed by the raised coloured border were pigmented and covered by the finest scaliness possible, so that they looked as if dusty, and gave the impression that the border was scaly, but closer examination negatived this, as the coloured circumferential border was non-scaly. Again, there were irregular gyrate lines as if formed of two or more broken circles, and, lastly, long lines partly curved and partly straight, which terminated abruptly in clear skin. These latter were mostly present in the adductor and extensor surfaces of the thighs, and near the axillæ over the adjoining pectorals and deltoids.

Further examination revealed the presence of some enlarged glands in the groins and right axilla, and of the right mammary gland. The glands in the neck were normal. A full physical examination showed that all his organs were healthy and all functions were normally discharged, except,



Erythema Marginatum Perstans.
(Circinatum, Gyratum et Marginatum.)

perhaps, a little indigestion and constipation. There is no evidence of syphilis, and the lad is a total abstainer. His family history is good.

The following personal history and that of the disease was supplied by the patient himself, who is intelligent, and I read it in his own words :—

I first took the disease in August, 1899, and, feeling sick, I went home and was attended by the local doctor ; on his advice I went into the Banbridge Infirmary on September 9th, 1899, and was there only two weeks under treatment, and left seemingly cured. A week had just elapsed when the skin disease came back, and I was readmitted to the infirmary, where I remained about seven weeks, and, though a great deal better when I left, the rash was still out on me. I stayed at home until the end of January, 1900, and I then went into the Skin Hospital in Belfast, and remained under treatment for nine weeks. On leaving, the skin rash was better, but not cured, and I remained at home from April to the end of July, using the ointments I had had while in hospital, after which I returned to business. Except for the month of May, 1901, I have been at business until I came to Dublin, October, 1902. In the month of May I had a very bad cold (influenza ?), and during the cold the skin disease came out a great deal more than previously.

During the time at business the skin eruption kept about the same. My legs always were worse than any other part of my body, and if exposed to cold while dressing or undressing would become very hard and of a blackish colour, and they were often swollen about my ankles and even up to the knees. I have had very bad chilblains on my hands the last two winters.

As to my general health, I have not suffered from any bad illness, but I was easily tired, and perspired very readily. My digestion was bad, as after taking food a quantity used to come up, and my mouth had always a dirty, sticky taste in the mornings, and this continued for a long time in spite of care being taken as to my food, &c.

The rash or skin disease, which is now on me for over three years, begins something in the form of a hive, and then it spreads in a ring, the centre becoming healthy-looking, while the ring or border is raised and of a red colour ; then one ring meets another, the raised parts blend and spread into all kinds of shapes, and some end in lines either curved or straight. When the inflamed raised parts on my wrists and thighs are much rubbed small watery blebs, about the size of a wart, may appear. The skin disease is at times very itchy and especially at night, just like nettle-rash, and I have not been able to resist scratching the spots with my nails sometimes, and have torn them occasionally and made them bleed. The rash has always been worse on my thighs, and legs, and about the knees. My back, shoulders, body, and stomach were also covered with disease ; very few spots ever appeared on my face, scalp or neck, and it is only this year that is has come out so much on my arms and backs of hands. Although it has never gone away altogether since August, 1899, it at times was less pronounced, and then again it would return, and though it faded and changed its pattern in one place it would crop up again in another. I do not know any cause for the disease appearing in 1899 in either my habits of living or in my business. I have never had any serious illness, nor am I rheumatic."

To this lucid description I have only to add the results of my own observation while the patient was in hospital.

The eruption, delineated by this painting and these photographs, which latter have been taken by Dr. J. Joly, has been fairly persistent, lasting unchanged for a week or two, and it has been seen to fade in one region while close by to come out afresh. I found the new spots were small papules, and for the purpose of observing their future stages, I enclosed them in a square of aniline ink. In three days they were small circles quarter-inch in diameter, and they were soon seen to reach the enclosing lines and to spread wider and wider beyond them and to form a distinct circle, and then, as the convex edge approached and touched another similarly spreading

circle a breach occurred at the point of contact and the *E. annulare* or *circinatum* became *E. gyratum*, the various shapes of which latter depending upon the sizes of the meeting circles; lastly, some of the large gyrate margins, seeming to exhaust themselves, ended in curved lines forming curious devices with terminals abruptly raised—*E. marginatum*. Except being distinctly raised, they were not at all unlike some tattooing in Egyptian or Hindustani characters. Though I carefully looked for examples of the *erythema annulare* covered with vesicles—the so-called "herpes iris"—I failed to find any, and in like manner I failed to meet a spot of *erythema nodosum*.

Recognising that in all probability arsenic and all the usual remedies had been employed on this boy, and with no lasting good effect, I exhibited the use of thyroid extract; at first in doses of 5 grs. twice a day, and later on three times a day. I was led to think of it knowing its remarkable influence on the cutaneous circulation and the stimulation of the cutaneous lymphatics, and hoped that absorption might be affected of the inflammatory exudation which constituted the disease. During its administration the temperature of the extremities was more evenly maintained, and the induration and swelling of the legs reduced; the patient felt more comfortable, and the larger lines and circles have been more or less absorbed on the back and arms, yet the erythematous and indurated lines on the thighs have not improved, and new papules have continued to appear on the back and shoulders, and rings and gyrate patches have recurred on the forearms and spread down on to the back of the hands, while each new crop of papules, &c., was attended by very well marked itching.

As the results were not sufficiently pronounced, I have therefore discontinued this drug, and have substituted for the present syr. ferr. iodid. and ol. morrhuæ.

A few words are necessary on the subject of the diagnosis of the disease.

The peculiar appearance of the patches—pink, red, violaceous—which originally came on as an acute attack in 1889, to be followed by similar exacerbations—the patches appearing first of all as small papules circular in form, fading in the centre as they extended peripherally, assuming shapes of irregular curves or festoons, and of long red curved and zigzag lines—this protean character of the eruption makes it take its place under the affection which is termed "erythema multiforme." The only missing members of the family group being the concentric rings possessing variegated colours—red, purple, yellow, and blue—which is designated *E. iris*, and the solid swellings of the extremities called *E. nodosum*.

The absence of violent itching and tingling and burning sensations distinguish it from urticaria, which it closely resembles, while the eruption is more pronounced in colour and form, is more persistent, and there is an absence of wheals.

When first seen on the thorax it slightly resembled the circinate and gyrate rash of psoriasis, a drawing of which I submit, but besides its own characteristics, described above, it lacked the two well-marked features of psoriasis, viz., (1) the bleeding points one finds on attempting to scrape away the spots ; and (2) the heaped-up epidermic scales peculiar to the latter disease.

It has nothing in common with eczema—even the variety "eczema papulosum," from which the absence of very severe itching, the large size of the papules, and their irregular shape and form sufficiently distinguish it ; while from "dermatitis herpetiformis" the absence of vesicles and bullæ sufficiently remove it. There were a few vesicles discoverable on one or two of the red lines on the wrists while under hospital supervision, and the patient reports that he had noticed a little moisture to exude occasionally from them when much

rubbed, but I feel confident this disease is excluded, for while some cases of D. herpetiformis have an erythematous and urticarial phase, it is essentially a vesicular or bullous disease, and includes such conditions as "herpes gestationis," hydroa æstiva," or "hydroa vacciniforme," &c.

The chief resemblance between the two diseases, that is, erythema multiforme and dermatitis herpetiformis, seems to lie in the disposition to group and to extend about the periphery. Dr. Payne showed a case before the Dermatological Society of London in 1898 which he described as "erythema gyratum," but which seemed to have been one of the erythematous stages of dermatitis herpetiformis in the subsequent opinion of himself and Drs. Crocker and Malcolm Morris.

I shall quote the published extract in the "Transactions" (p. 142) as it strongly resembles my case, and it is possible that even in contravention of the above specialists' opinion, Dr. Payne's case was one of erythema multiforme, and not of dermatitis herpetiformis.

"A man, æt. 45, presented an eruption, which had lasted sixteen months, and which consisted of erythematous patches varying in size up to some inches in diameter, the larger being distinctly annular or marginate, with a raised, red, somewhat hard margin. The smaller were discoid. Some patches were persistent for a long time (weeks ?), others more transitory, and new patches appeared from time to time. The eruption was generally distributed on the covered parts of the body, but absent from the face and hands. A few spots showed traces of a ruptured vesicle, and the itching was at times very great. The lymph glands all over the body were enlarged and hard, especially in the groin." A subsequent report stated "that under full doses of quinine (15 grs. a day) the patient recovered."

Recognising that the case I have reported was out of the ordinary run of cases of erythema, I made search for the

description of any cases of erythema which could tally with it and consulted all the text-books on skin diseases, including the latest, by Stellwagon (1902), but with little success.* In my search through the volumes of the *British Journal of Dermatology* I came across two instances, in addition to that of Dr. Payne's, which may be somewhat similar to mine. (*a*) In Vol. III., p. 24, Dr. Abraham exhibited a woman with erythema perstans affecting the hands, but no notes are recorded. (*b*) In Vol. IV., Dr. Saville gave the notes of a case of a woman, æt. 35, whom he exhibited to the Society. She had had a first attack five years before, lasting two years, and a second attack, after an interval of nearly three years during which she was quite well. The erythema came out first on the hands and feet, with itching at night, as a slightly raised flat eruption, which in two days became a circle of two inches diameter, the margin was raised, there were no vesicles or scales. Then the rash appeared on the dorsum of the feet, similarly raised, as red circles and segments. Dr. Saville considered it a variety of erythema multiforme, and its nature seemed unknown to the members of the Society present.

I also searched the volumes of the *American Journal of Cutaneous and Genito-Urinary Organs*, and was so far rewarded by finding one case, and one case only, somewhat closely resembling mine in some of its features. It is recorded by Dr. Lustgarden before the New York Dermatolo-

* Dr. Walter G. Smith has since called my attention to a paper read before the Clinical Society of London by T. Colcott Fox, M.B., November, 1880. In it he details two cases of erythema gyratum perstans in a brother and sister, æt. 19 and 18, which had lasted, with remissions and quarterly exacerbations, since they were four years of age, with a drawing affixed (life-size copy is in the Royal Atlas of Rare Skin Diseases). In every feature these cases seem to resemble my case. Steel and cod-liver oil, after a prolonged course, seemed to do them good

Dr. Fox kindly wrote to me on the subject of my paper in January, 1903, and informed me "that his two cases are still going on. The woman has the eruption very slightly now, but the man has the eruption as badly as ever, and always after a free indulgence in alcohol."

gical Society in 1893, Vol. XI., p. 110, under the name erythema papulatum, vel circinatum figuratum, perstans, et chronicum.

A man, æt. 21, was struck by a horse on his head, and, two months after having been trephined, an eruption came out on his body and lower extremities in annular or gyrated patches with elevated borders, remaining for weeks and months, and leaving the skin pigmented. New patches were being constantly added, with slight itching and unaccompanied by any other subjective symptom; all medicines employed seemed useless. Dr. Lustgarden considered it a reflex neurosis of traumatic origin.

A passing comment is necessary on the involvement and enlargement of the glands in the groin and in the right axilla, which may be considered a feature of unusual character.

With the exception of Dr. Payne's case (*supra*) the only allusion to this complication is quoted in Stellwagon's *Diseases of the Skin* (p. 197) as being Jarish's view that the swelling of the lymphatic glands, especially the cervical, has been sometimes noted in erythema multiforme.

In conclusion, I have to thank the Academy for their patient hearing, and to offer my apologies for having occupied so much of their time in portraying the features of this case. I trust some members present may have seen similar cases, and that they may be able and willing to assist me on the question of treatment.

ADDENDUM.

The further course of this case after November, 1902, was remarkable, for the patient suffered from a severe febrile attack of tonsilitis with diphtheritic-like exudation, which, however, was of the nature of streptococcic and staphylococcic organisms. The week following vesicles and bullæ formed over all the extremities even to the fingers and toes,

many of them filled with pus, and some of the bullæ were an inch in diameter ; during this illness the erythematous lines and rings became vesicles and pustules, so that if now seen for the first time the symptoms tallied closely with "dermatitis herpetiformis." In six weeks time the eruption had largely disappeared with almost general desquamation and the original erythema seemed for a time to be cured ; but as the patient got stronger and was able to be about, the old disease reappeared with very much the same characters. The patient left hospital in March, 1903, and has kept me informed as to his health and state ever since, and on 17th April, 1903, wrote : " I am nearly as strong as ever I was. I weigh now ten stone nine pounds, a great increase —over two stone—since I was in hospital. I am sorry I have not a better report to make about my skin. It is much the same as when I wrote to you last."

A CASE OF LYMPHADENOMA ASSOCIATED WITH RECURRENT FEVER.

BY

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Physician to the Adelaide Hospital, Dublin;

AND

J. ALFRED SCOTT, F.R.C.S.I.;

Pathologist to the Adelaide Hospital, Dublin.

CASES of long-continued pyrexia, not due to any of the ordinary causes—tuberculosis, typhoid, or septicæmia in its usual sense—occasionally occur, and from their obscurity as well as rarity deserve some consideration. The case we are about to bring before the Academy presents many features of interest.

CASE.—Mr. H. was born in 1865. His mother died of phthisis. He was a man, strongly built, and about 5 feet 8 inches in height. He went to sea as an engineer on various cargo steamers, and was in many places where malaria exists, but never had an attack of this disease. He contracted syphilis about six or eight years ago, and was treated with mercury; it was a mild attack, and he never had any recurrence of its symptoms. He remained at his work as an engineer until 1898, when he was employed on a grain steamer. Here he was greatly exposed to the dust of the grain while the boat was being loaded and unloaded, and he seems to have suffered in some way from its effects. At any rate some of his friends thought he never seemed quite the same man afterwards.

In 1898 he left his work on board ship and became a commercial traveller, travelling mostly in the north of England. His health kept very good till the end of October, 1900. At this time he began to feel poorly; he became disinclined for work, lost his appetite and developed a cough. He consulted a doctor in Hull,

who found his temperature was 101° or 102°, and believed he heard some râles in his right apex. The doctor concluded Mr. H. was developing phthisis, and advised him to come home.

I saw him at his father's house in Ranelagh, Dublin, on November 11th, 1900. His temperature was raised, and he obviously felt very unwell, but I could not detect any physical signs of disease in either lung. In fact there was no sign of illness except pyrexia. There were no spots ; his spleen was not enlarged ; his urine was healthy ; his pulse quiet, from 66 to 80 ; his heart sound ; his bowels were rather confined so that an occasional dose of cascara or other purgative was needed. He could take light food fairly well. He had some cough, rather paroxysmal in character, and tending to end in retching and occasionally in vomiting. From the absence of every other obvious cause of fever I began to suspect an anamalous case of typhoid, and Dr. Scott kindly examined his blood for me. He found Widals' reaction present, though not in a very marked degree ; so we concluded the disease was typhoid.

The attack lasted four weeks ; then, after a week's interval of normal temperature there was a relapse of ten days' duration ; then after ten days a second slighter relapse of ten days. After this his temperature remained down ; he grew stronger, ate largely and grew fat, and went to Llandudno on February 6th, 1901. He remained there for a month, and though he became fairly well he never got quite strong, and suffered from cold perspiration ; also from pain and tenderness in his feet.

He came home on March 7th, 1901, very fairly well, but soon developed a cold and again became feverish. I again failed to detect any physical sign of any disease. He however was more ill than during his first attack, less able to take food, and more depressed. His temperature, the course of which was quite irregular, tended to rise. On April 9th Dr. Little saw him with me, and agreed with me that all his organs were healthy. Arguing however, from the paroxysmal cough, which often ended in retching, he thought there were probably enlarged intra-thoracic glands, either syphilitic or tubercular, irritating some of the nerves

in the thorax—a view which is remarkably borne out by the autopsy.

Mr. H. became worse ; began to be delirous at night ; his temperature was found to be persistently about 103°. Dr. Scott again examined his sputum, urine and blood. The urine was healthy ; there was no trace of tubercle, or malaria ; there were no microbes found in the blood, the blood count was as follows :—Red blood corpuscles 3,570,000 per cb. m. ; one or two white in 2,288 ; hæmoglobin 90 %=1·3 normal, per red blood corpuscle All treatment —quinine, mercury, arsenic—was quite ineffectual. It looked as if he were going to die, when on April 26th his temperature began to fall ; fell to normal in three days ; never rose again ; and in a week he was out in the garden, practically well. His family had nursed him, but on April 25th a nurse came, and the improvement seemed to date from several enemas which she gave him, and which thoroughly cleaned out his bowels. On May 10th he went to Howth and seemed well, but could only walk a short way owing to numbness and tenderness in his feet, which I thought might be due to slight neuritis. On May 18th his temperature again began to rise ; Dr. Little had suggested a sea voyage, and he now resolved to go to Monte Video for which place he sailed on May 30th, the temperature being then about 103°.

The fever continued till he left Rio on his way back, about the beginning of July. He came home on July 23rd, looking well and stout. He was able to walk three or four miles, but still complained of his feet. He spent a month in Co. Wexford with friends ; and became very fat—almost 14 stone in weight. He came home on October 9th, but soon became dull, apathetic, disinclined to go out. I saw him again on November 2nd, and found again fairly high fever, with nothing apparent to account for it. He steadily became weaker, took but little food, and as he could not be nursed properly at home came into the Adelaide Hospital on November 18th. From that time on his temperature was from 102° to 104°, his bowels were rather confined ; he needed occasional purgatives ; the urine contained a trace of albumen. Dr. Scott examined his blood on November 26th, and found :—Red blood

corpuscles, 3,727,000 ; white blood corpuscles, 1 in 600 ; hæmoglobin 37·5 %=½ normal, per red blood corpuscle. Thence he became steadily worse ; his pulse became weak and frequent 100, 120, 140. Rhonchi developed in the bronchial tubes ; he became delirious, then comatose, and died, as fever patients die, of heart failure on December 2nd, 1901.

To sum up :—This man came of a tuberculous family ; he had had mild syphilis about 1895; was quite strong till November, 1900, when a fever commenced, which lasted over five weeks, and was followed by two relapses of ten days' duration each. He was well for about six weeks ; then (about March 15th) a condition of high fever came on, and lasted six weeks, ending by crisis April 27th. On May 18th pyrexia again came on, lasting till the beginning of July. Then he was well till the beginning of November, when high fever recommenced and lasted four weeks—until his death. During all this time, if we exclude the first attack, and the relapses which were probably due to enteric, no one could discover any cause whatever for his pyrexia.

The *post-mortem* examination showed that the body was well nourished, though not so stout as he had formerly been. In the thorax a large mass could easily be seen under the sternum, in front of the trachea. This lay over the upper portion of the pericardium and extended on side above and behind the roots of both lungs, lying round the œsophagus and behind the heart. Roughly its dimensions were about four inches wide at the upper part, and about five inches long at the back. It was made up of a number of ovoid masses, like large lymphatic glands, about half an inch to one and a-half inches in diameter. These when cut appeared a light grey colour, with black spots scattered through them (absorbed carbon). In some cases these latter were absent. A small separate mass of similar appearance, about half an inch diameter, was attached to the inner pleural surface of the upper lobe of the right lung extending about half its size into the lung substance. The middle lobe contained a small oval mass three-quarter inch long, apparently calcified at the centre.

In the abdominal cavity more of these apparently enlarged

glands existed at the attachment of the mesentery round the aorta, and in the mesentery a calcified mass, about one inch long, was found. A small grey spot was noticed in the liver surface. The spleen was enlarged, measuring about six inches by three and a half inches, and weighed 1 lb. 2 oz. The surface was mottled and irregular, light patches, which could be felt to be firm, and which appeared on section to be in the substance of the spleen. Those at the capsule look like small infractions.

The intestines were examined through their whole length. Peyer's patches were almost completely absent. In one spot a few follicles were scattered over an area, which was thinner and paler than the surrounding portion, and other oval pale portions could be seen about the size of a Peyer's patch. These were probably the scars of old typhoid ulcers. No increase of the lymphoid tissue was seen.

The heart, brain, kidneys, suprarenals and thyroid were normal. Microscopically, the appearances of the thoracic tumours and the growths in the liver and the spleen were very similar. Those in the thorax are principally composed of fibrous tissue strands, with a few cells lying between them. Most of the cells are small, similar to lymph cells, with a few larger ones, some of which have apparently more than one nucleus. In the spleen the fibres were finer, but otherwise the general description was the same.

The appearances agree with those described by Greenfield (*Path. Soc. Jour.*, 1878, xxix., p. 272), as found in some cases of lymphadenoma, and is apparently the same condition called by Virchow, lympho-sarcoma. There are two extreme forms found in this disease. In the majority of cases they appear to be simply enlarged glands with, perhaps, an apparent removal of the normal structure by an overgrowth of cells. In other cases—whether a later one or not it is difficult to determine—there is an overgrowth of the connective tissue fibres, with an inverse reduction in the number of lymph cells, together with the presence of multinucleated

cells, possibly endothelial. Occasionally the arrangement of the cells suggest the appearances seen in some sarcomata, which is emphasized by the tendency of these tumours to form metastetic growths in other organs. The growths at present under consideration apparently belong to those cases associated with an increase of the connective tissue, the appearance being very like those figured by Greenfield.

Sections from various portions were examined for micro-organisms, none being found. I thought some would have being there from the history of steamer dust. While it is possible that such may be present which cannot be stained by present methods, it is also conceivable that they may have been a factor in the case at an early stage and have vanished subsequently. This, indeed, has been noticed in a case quoted by Shaw (*Edin. Med. Jour.*, Dec., 1901), to which our attention was directed by Dr. Little, None were found in our case when the blood was examined during one of the febrile attacks. Might it not be possible that such were inhaled a couple of years ago when on the grain-steamer, and that these micro-organisms started some interstitial inflammation which continued to increase, although the actual cause was removed. There was no leucocytosis on either of the occasions when the blood was examined—a result which is not surprising in the light of the *post-mortem* examination, so many of the lymph glands being reduced to simple masses of fibrous tissue.

It is so difficult to discuss the question of the intermittent high temperature ; nothing was seen which would give any reason for it. Micro-organisms have been seen in published cases coinciding with the periods of high temperature, but not in this case.

The temperature appears to be generally higher than normal in Hodgkin's disease, though not always intermittent. In these cases it has been suggested that the high

temperature coincides with the period of active growth of the tumours where such do not grow quite regularly.

Which of these two views it correct ? Do some cases of lymphadenoma form in their growth some poison which causes fever, or are the attacks of fever due to the more or less accidental entrance into the body of microbes ? To these questions it is not yet possible to give any definite answer. Dr. Shaw (*loc. cit.*) favours the latter view. The closing sentence of his paper will express much of what is known on this obscure subject. He writes : " Consideration of the above cases impresses the view that lymphadenoma with recurrent fever is not a special form of disease ; that such cases are due to a terminal infection occurring at any time during the last year of life of some patients affected with lymphadenoma ; that the nature of the bacterial invasion is different in different cases ; and that in some cases proof of a bacterial invasion is wanting ; that in a considerable number of cases of lymphadenoma with recurrent fever there is a great constitutional disturbance with elevation of temperature, rigors, vomiting and diarrhœa, anorexia and malaise ; that in some cases urobilinuria is a marked symptom ; that in some of the cases the superficial lymphatic glands and even the spleen became very tender and enlarged during the attacks ; and that the skin over the glands may become reddened and show an increase of local temperature. Finally, that the prognosis in such cases is, as a rule, hopeless and that the duration of life after the onset of the periodic attacks of fever averages about seven and a-half months, but may be as much as twelve or fourteen months."

PAROXYSMAL TACHYCARDIA ASSOCIATED WITH EPILEPSY.*

By R. Travers Smith, M.D., F.R.C.P.I.;

Visiting Physician to the Richmond, Whitworth, and Hardwicke Hospitals, Dublin, &c.

K. M., a healthy-looking, well-developed girl, æt. 14, was brought to the Whitworth Hospital by her sister, on September 26th of this year (1902). She complained only of violent and rapid beating of her heart. On feeling her radial artery the pulse was found frequent beyond counting, small, thready, and compressible. Auscultation of the heart revealed the astonishing rapidity of 248 beats per minute. My resident pupil, Mr. Tighe, independently confirmed this observation at the time. Except for its rapidity, an impulse somewhat diffuse, and rather short, sharp sounds, the heart appeared normal. Nothing was noticed elsewhere other than a distant and somewhat vacuous facial expression. At the girl's own request I allowed her to return home, having first made arrangements for her admission to hospital in the afternoon. On her arrival at home, and after this paroxysm of tachycardia had ceased, though she had some vague recollection of having been brought to a hospital in the morning, she did not remember the details of our interview, and the news imparted to her by her sister that she was to become an inmate of the hospital in the afternoon, caused her surprise and consternation. This circumstance well illustrates the lapses or partial lapses of memory accompanying many of

* Read before the Section of Medicine of the Royal Academy of Medicine Ireland, on November 21, 1902.

the paroxysms of tachycardia in this patient, of which further evidence was subsequently adduced. The night of her admission she again complained of "an attack of the heart," when Dr. Holden, the house physician, was able to count her heart beats at 260 per minute.

The following personal and family histories were obtained from the patient herself and her relatives. K. M. had always been healthy till a year ago, when, in school one day, she suddenly became weak and her heart beat violently. The next "heart attack," as she called them, did not supervene for three months, from which time they increased in frequency till for some months before admission they occurred every two or three days, sometimes even twice daily. These "heart attacks" would come on absolutely suddenly without apparent cause, last varyingly from five minutes to four hours (commonly one or two hours), then as suddenly vanish. In these attacks she would be conscious of the great rapidity of her heart's action, but would make no further complaint. Her relatives (as well as the patient herself) recognised the impairment of memory which accompanied these paroxysms of tachycardia, and stated that on two or three occasions it amounted to a state of unconsciousness, in which she fell to the ground, but did not convulse. Abundant passage of urine after her paroxysms was noted by the patient. Six months after the first appearance of these cardiac symptoms she began to suffer from seizures, of what I presume to have been minor epilspsy. Without warning she would suddenly lose consciousness for a minute or so, as well as she could judge. During that time she would be absolutely oblivious to her surroundings, stop what she was doing or saying, then recall herself to consciousness with an effort. On these occasions she experienced nothing abnormal in her heart, in fact, looked upon these attacks of giddiness, as she called them, as something entirely different from her "heart attacks." They

never became as frequent as the latter, occurring only once a week approximately.

The opinion that these "heart attacks" were genuine paroxysms of tachycardia was strongly confirmed by the testimony of the patient's step-mother, a trained hospital nurse, who recognised the extreme rapidity of the pulse.

K. M.'s family history is of interest. She is the youngest of eleven children, four boys and seven girls. Her mother died from an unknown cause. Her maternal grandmother, herself healthy, had three sisters, all of whom were healthy, all of whom married, and each had one child. These three children, first cousins of K. M.'s mother, were all epileptics, one of whom became insane. This history indicates a decided neuropathic taint on the maternal side of K. M.'s family.

During the first of the seven weeks' residence in hospital K. M. had several severe paroxysms of tachycardia, and, as well, two seizures of major epilepsy, separated from one another by an interval of three days. These two fits appeared without premonition, the patient becoming unconscious and convulsing in the face and limbs. The convulsions passed off in a few minutes, save for an occasional twitch of the facial muscles, but the patient still remained in a state of coma for nearly an hour in the first, for fifteen minutes in the second. The pulse rate was up to 100 and to 96 respectively in the two fits. On recovery from both drowsiness and marked irritability were observed.

It may be stated at this point that repeated examinations made during the stay of the patient in hospital, except on the occurrence of the two fits or paroxysms of tachyrardia, revealed nothing abnormal in the heart or elsewhere save an occasional functional systolic murmur most audible in the pulmonary area. The girl was bright and intelligent, with normal pulse and healthy apparently in every respect. The

menstrual periods were not established. In short, observations made in hospital merely corrobrated the patient's own statements.

After the second fit at the end of the first week in hospital potassium bromide was administered in gradually increasing doses with, so far, very pleasing results. The patient has had no further fits of major or minor epilepsy, though it is now just seven weeks since this line of treatment was commenced. The paroxysms of tachycardia have reduced in frequency, more so in duration and severity. For the last two weeks she has had but three paroxysms, each of which was mild and only lasted five minutes.

It is not my intention to enter into the clinical details or the supposed etiology of the interesting symptom, tachycardia. Dr. Finny has dealt with the subject very fully, has recorded three instructive cases, and has compiled a careful bibliography, to be found in Vol. XVII. of our "Transactions." Suffice it to say now that tachycardia in some instances is merely a symptom which may be due to diverse causes. Among these are organic disease of the heart or vessels, exophthalmic goitre, toxic states, and fevers. Such tachycardia has been styled "symptomatic" in contradistinction to the variety in which the rapid action of the heart, usually in paroxysms, appears to be the sole manifestation of any morbid state. This variety has been called "essential," its etiology is still enveloped in a cloud of mystery. Trousseau suggested the phrase "partial epilepsy and Talamon "cardiac epilepsy" in this connection. The idea, therefore, that some cases of essential paroxysmal tachycardia may be fundamentally similar from a pathological standpoint to epilepsy, is not new. Yet, in the literature of the subject I can find no record of a case (though it is highly probable that such exists) in which paroxysmal tachycardia and epilepsy were as intimately associated

as in that above related. The association may be thus summarised :—

1. The patient inherited predisposition to epilepsy, three of her mother's first cousins, each of separate parentage, suffering from it.

2. The tachycardia commencing in early life, its sudden paroxysmal nature, its mysterious appearance, disappearance, and reappearance ; its tendency to become more frequent and severe, are all suggestive of functional epilepsy.

3. The patient's vacant look in a paroxysma, the impairment of memory, occasionally amounting to unconsciousness, indicate a mild degree of the psychical disturbances of epilepsy.

4. The occurrence of polyuria after a paroxysm of the heart as after epilepsy. (Verified in hospital.)

5. Minor epilepsy showing itself as well as the tachycardia, both occurring frequently, but without apparent order or sequence.

6. The subsequent appearance of major epilepsy in the same patient.

7. The decided improvement (if only for the time being) of the paroxysmal tachycardia on the administration of potassium bromide.

8. Perturbation of the heart's action has been observed as an aura in epilepsy.

In fact it appeared in this particular case, that epileptic "nerve storms" were more prone to sweep in the direction of the heart than in that of the voluntary muscles, but whatever their direction might be, they temporarily devastated, to some degree, the higher physical centres. This theory is not suggested as a serious elucidation of the pathology of the case ; at best it is only somewhat less hypothetical than the explanation which would have been proffered in the Middle Ages, namely, that at times the demon of epilepsy

entered the girl's heart. My experience, however, will prompt me to give potassium bromide a fair trial in the next case of paroxysmal tachycardia that falls to my lot, on the supposition that it may possibly in some instances be a rare manifestation of epilepsy.

Note.—Patient has manifested no symptoms of epilepsy or tachycardia for over six months. She continues to take small doses of bromides.—*June*, 1903.

A CASE OF PAROXYSMAL TACHYCARDIA.*

By Joseph O'Carroll, M.D., F.R.C.P.I.;

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Tachycardia is well known as a symptom of many organic diseases or functional disorders. Its pathology in these cases is closely bound up with the original or causative disease, and may be almost as various. But in certain cases, in which no organic disease can be detected, and in which no constant functional derangement seems to be present, tachycardia, paroxysmal in character, and alone or accompanied by symptoms which are largely subjective, may come under observation. Of these cases there is no satisfactory explanation, no ascertained causation, and no morbid anatomy to record. They do not lend themselves readily to any label such as gout, or hysteria, or neurasthenia; nor can they be referred decidedly to one sex or another (though no doubt women suffer most), nor to the disturbances of any critical period, whether adolescence, the menopause, or senility. If there be any group of circumstances to which any considerable proportion of such cases is to be referred, it will perhaps be that which embraces fright, anxiety, overwork, or generally speaking, acute or prolonged overstrain, whether of body or mind. But how these act in producing a liability, extending perhaps over many years, to attacks of very rapid pulsation of the heart interjected into the normal cardiac life we are quite at a loss to explain. It is just in such questions that theory runs riot; yet we can only cease to

* Read before the Section of Medicine of the Royal Academy of Medicine in Ireland, on December 19, 1902.

theorise when we cease to think. In such obscure conditions as idiopathic or paroxysmal tachycardia it is permissible to base theories of causation on the results of physiological experiment in animals, on the clinical observation of concomitant symptoms and on the results of treatment.

Of tachycardia physiology can offer no reasonable explanation ; it has little knowledge of any mechanism or agent by which the normal heart rate can be multiplied four times for hours or days together, without any apparent damage to the organism or the organ. We are thus thrown back upon clinical and therapeutic observation, and it is because the case I am about to relate seems to give some hints as to causation derivable from both its symptomatology and its therapeusis that I venture to bring it under your notice.

A governess, æt. 34, unmarried, was put under my care in hospital by my colleague, Dr. Harvey, on July 15th, 1901. She was a tall, healthy-looking lady, highly intelligent and well educated, who had supported herself for some years by teaching. She lives alone ; moves about much every day from tuition to tuition ; and occupies her evenings either with literary work or with night classes. Her father is alive ; her mother is stated to have died some years ago of bronchitis ; and a sister died also, but my patient does not know of what disease.

The patient states that she enjoyed excellent health until June, 1887, when she first got attacks of pain in the chest. Later on in the autumn she had two further attacks, and then she had freedom from them till August, 1892. A further period of good health followed until 1898, but in that and the two following years she had several returns of the pain. In February, 1900, the attacks began to be much more frequent than previously, coming on during the first six months of the year about five times a week. She has a tendency to constipation ; menstruation has been pretty normal.

On admission it is seen that she is by no means anæmic ; is muscular, but not fat ; there is undue gastric tympany. She is of a cheerful, non-anxious, non-introspective disposition. Lungs apparently normal. Urine normal. Heart-sounds normal ; area perhaps slightly increased, but her thorax is spare ; pulse 44 beats in the minute, regular and of medium tension. She describes the attacks from which she suffers as follows :—They come on with dimness, which sometimes reaches complete loss of vision ; then great pain in lower sternal region, with rapid action of the heart. The pain may last from ten minutes to ten or twenty hours, the shorter period being much the more usual. These attacks bear no constant relation to meals, nor to abdominal flatulence, nor to muscular exertion. In fact they occur usually when she is in bed, at muscular rest, and are not likely to be caused by running to catch a tramcar or train. Breathing is not interfered with, and there is no fear whatever of impending death. Involuntary micturition has never occurred in the attacks, but once or twice she has lost consciousness, from, she says, the intensity of the pain.

On July 25th, her case sheet records that she had fifteen short attacks. "It appears," says the note, "that in a typical attack there is noticed at the outset a dazed expression with pallor of the face, some agitation and trembling. She sits up in bed, and grasps the side of it. Respiration is quickened. The attack lasts about a minute, and terminates by flushing of the skin and copious perspiration."

Other attacks are described during her stay in hospital, some of them lasting four or five minutes, sometimes (that is, the pain,) several hours. She cannot lie down while the pain is present, but on the contrary has to get up and walk about when it is very acute. When the retro-sternal pain has lasted for a considerable period it usually ends by becoming unbearably acute for a few seconds and then disap-

pearing suddenly. At the moment of its disappearance she has the impression of some mass or organ behind the sternum suddenly shifting from left to right. During these attacks tachycardia was constantly noticed, but strangely enough I do not find exact figures recorded till December 25th last. The note says :—" Patient has had an attack this morning. The apex beat is felt and seen in the fifth space and nipple line. By auscultation the pulse rate is made out to be 260 in the minute. Patient states that during the attack she feels her left arm to have lost sensation and power, and to be as if tightly bound up. This arm is at present colder than the right."

In subsequent attacks the pulse is noted at 240 and 230 a minute, always having to be counted from the heart beats as heard through the stethoscope.

Finally she left hospital in January of this year quite unrelieved. Digitalis, nitro-glycerine, nitrate of amyl, chloroform, purgatives, careful dieting, and many other measures had been tried in vain. It is stated that on one occasion faradism, one pole being applied over the spine of the first dorsal vertebra and the other just below the left mastoid process, cut short an attack of pain in ten minutes. But as that attack had began at 10 a.m., and the experiment was not tried till 5.30 p.m., and as the interrupted current failed to do any good on subsequent occasions, I am fain to believe that the application of the current almost coincided with the natural end of an attack.

Since she left hospital she has come to see me at my house, for I was anxious to follow such an interesting case, and I could not find time to interview her at her extern visits to the hospital. Before she left hospital I had put her on a mixture containing the bromides of potassium, sodium, and ammonium ; but she had not seemed to derive any marked benefit from it. About May last, however, I determined to

try their effect afresh, and put her on a mixture containing about fifteen grains of the mixed bromides in the dose. This quantity was taken at first three times a day, then four times, then five times, six times, and seven times ; and then I lost sight of her. But about a fortnight ago she called on me to tell me that she had had no attack since June, was as well as ever, and could now work hard, and lie down on a low pillow at night instead of being propped in the half-sitting position which she had been compelled to assume for years.

I shall offer very little criticism on the preceding history. Told in this compressed form it cannot fail to suggest what was by no means evident from day to day, namely, that the attacks had an epileptiform character, and the improvement whilst taking the bromides seems to confirm that view. But the word epilepsy is no more an explanation of morbid phenomena than is hysteria or "nervous debility." I am still unable to decide as to the cause or origin or even the true site of the pain which my patient complained of, and which, it must be remembered, presents itself to her as the chief and original element in her trouble. I have no evidence that she suffers from any symptoms suggestive of major or minor epilepsy at any time except during the cardiac pain and racing ; and I remain quite in the dark as to whether this is to be set down as a case of visceral epilepsy with very occasional cerebral extension, or as a case of central epilepsy, with cardiac convulsions as its peripheral manifestation, and cardiac pain analogous to the soreness and weariness left in the muscles after a severe fit of the ordinary type.

If we accept at all the theory of a visceral epilepsy, it must, of course, be in a very different sense from that which epilepsy usually connotes. We must take note of the more or less constant, and no doubt more or less rhythmical, functioning of most of the viscera ; and the conception of epilepsy of such organs must allow of the convulsion being much more

slowly established, much longer sustained, and attended by far different cerebral phenomena from those associated with the ordinary *petit* or grand *mal.* Whether it is at all profitable to add *visceral epilepsy* to our swollen catalogue of diseases is no doubt open to question. If, however, it should turn out that there are cases of recurring pain and spasm referable to certain of the viscera, and not to be accounted for by other explanations, and if a certain proportion of these are benefited by the treatment which suits ordinary epilepsy, the doubt will be answered. For the present, conditions such as paroxysmal tachycardia remain inexplicable, and any hint towards an effective treatment must be welcome.

Note.—The patient called to see me in May, 1903, and reported that she had had no recurrence of her trouble and remained quite well. She was taking the bromide mixture still, but in reduced quantity. I have seen her again in Sept., 1903. She is quite well, and has ceased to take any medicine.—J. O'C.

EXPERIENCES OF A YEAR'S TRIAL OF THE LIGHT TREATMENT FOR LUPUS.*

By C. M. O'Brien, M.D., L.R.C.P.;

Physician to the City Hospital for Diseases of the Skin.

The physical treatment by Finsen Light, of lupus and certain other skin affections, hitherto incurable and unhappily so common amongst us, has focussed so much attention of late as to warrant my submitting a short summary of the results obtained during twelve months' practical experience of the method. In order the better to enable those unacquainted with the treatment to form a correct estimate of its therapeutic value a brief description of the apparatus used by me, at the City Hospital for Diseases of the Skin, and its method of application, may be of interest together with the exhibition of a few cases with short descriptive histories, selected from some at present undergoing the treatment, as typical examples of the beneficial effects to be derived from this method when judicially employed.

The arc lamp is of the stage lamp type, and yields a search light equivalent to 1,500 candle power, it is worked off the City mains, the voltage of which is reduced to 45, by means of a choking coil and transformer. The lamp is a modification of the Lortet-Genoud or French lamp. It consists in brief of two carbon electrodes, supported on a frame, in front of which is a hollow, water-tight, metal shield in which cold water circulates, and through which the light is filtered, with suppression of the heat rays of the spectrum. In a central opening of this metal jacket, are rock crystal lenses which

* Read before the Section of Medicine of the Royal Academy of Medicine in Ireland, on December 19, 1902.

allow the passage of the ultra-violet rays, of the spectrum, almost all of which are absorbed by ordinary glass. The anterior lens acting the part of an ordinary Finsen compressor against which the affected region is pressed by the patient's own efforts, sufficiently strong to arrest the circulation in the part. The frame carrying the carbon electrodes allows of their being brought close to, or at a distance from, the back lens, the usual working distance being about one inch. By means of a series of joints, the lamp may be adjusted to any angle to suit the configuration of patient's face or any region affected.

Method of procedure before and after each sitting.—Having first removed all scales and crusts the patch to be treated is then bathed with weak boracic lotion and with æther if the surface of the skin be greasy. The part prepared thus, is now brought in contact with the compressor, and sufficient pressure exercised by the patient to render the patch anæmic. The subsequent reaction depends on, amongst other things, the duration of exposure and the intensity of the light employed, and with certain peculiarities of the patient not very well understood. Experience strengthens my belief, that many of the shortcomings hitherto complained of in the use of the French lamp as compared with the Finsen may be obviated by lengthening the duration of each sitting, while at the same time increasing the intensity of the light. The usual period allowed for each sitting is fifteen minutes and twelve amperes the intensity of light. Where the susceptibilities of patients allow I have been employing sittings of from twenty to sixty minutes and a current of from twelve to eighteen amperes with gratifying results, the reaction in each case becoming more pronounced and penetration to the deeper tissues more manifest.

The phenomena of reaction consist of temporary hyperæmia, redness, and vesication, with formation of crust, the

contents of bleb, the after treatment of which consists in the application of lint saturated in weak boracic lotion—if this latter be too painful a weak calamine or zinc ointment may be substituted till healed. After completing each sitting the compressor is thoroughly cleansed with spirit and a piece of dry chamois, it is most essential that the current of cold water circulating in the metal jacket be continuous and free from air bubbles, otherwise the back lens is in imminent danger of cracking.

The conditions found unfavourable for the treatment, and upon which most if not all workers are unanimous, and upon which special stress is laid at the Finsen Institute, are—

(*a*) Involvement of a large extent of surface, as only a small area can be treated daily, the disease while being arrested in one place may continue to spread in another.

(*b*) Interception of light from any cause ; scar tissue because of its density ; pigmentation ; vascularity.

(*c*) Anything that prevents that degree of pressure necessary to render the part under treatment anæmic.

(*d*) Certain positions, neighbourhood of the eye, mucous membranes, &c.

X-Rays as an addition to the Finsen Light.—In ulcerating cases where the pressure of the Finsen method could not be borne, the X-rays were employed till healing had occurred sufficiently to allow further treatment by the ultra-violet rays. In all such cases the X-rays are a most valuable addition, but more an addition to, rather than a substitute for, the Finsen Light. The tube used was a Cox's record tube, excited by a ten-inch coil with platinum break. Exposures of from five to ten minutes daily, or every other day, were made as circumstances demanded, the healthy skin having been protected from the influence of the rays by

a paper pulp mask, the outer and inner surfaces of which were covered by a layer of lead foil.

I may mention that the cases subjected to the Finsen method at the City Hospital for Diseases of the Skin were non-selected, the installation there being the first in Ireland, consequently in the general rush for relief, Lupus, among the afflicted, truly presented great variety in extent, character, and duration, which varied from three to twenty-eight years. All had been operated on prior to undergoing this special treatment, some as often as fourteen times, while in the case of others further operative measures had been deemed inadvisable. Under the Light treatment all the cases steadily improved, some continue to do so still, and with the latter time would appear to be the only essential necessary, while a good percentage of the earlier cases is, I am glad to say, already cured, at least in appearance.

As my observations are founded on personal experience extending over a period of comparatively short duration, my unwillingness to hazard an opinion as to the permanency of cure will be readily understood. With other workers in this field I agree, that tubercular disease of the internal organs, while not influencing the healing process in the superficial lesions to any appreciable extent, materially hastens recurrence of the growth in or near the neighbourhood of the scar.

If an expression of my opinion as to permanency of cure were solicited, I should say that the Finsen Light in this respect has no superior. In this belief I am strengthened by experience derived from personal examination of many cases at the Finsen Institute, Copenhagen, which were cured and had remained so from one to six years, and are still so I believe. I am further of the opinion, that in the treatment of circumscribed, superficial lupus, the Finsen Light has no equal, and when judicially applied ranks among the most brilliant discoveries of modern medical science.

I am hopeful, that with increased experience the Finsen method will, notwithstanding its expense, become more universally adopted amongst the hospitals of this country, and that the results accruing shall serve as an incentive to every worker to still further persevere in perfecting a method of procedure which Finsen himself, while calmly counting the hours to his own release from racking pain, admits is obviously capable of improvement.

Undermentioned are details of four cases, with photographs, selected from a considerable number which I had the honour of bringing before the Medical Section of the Royal Academy of Medicine, Ireland, in December, 1902.

MEMO.—These cases have been discharged, but are still kept under supervision.

CASE 1.—A girl aged 24. Unmarried. Weaver.

Family history.—Parents both alive and healthy, four brothers and one sister, all living and healthy.

Personal history.—Always enjoyed good health, until March, 1899, when she got an attack of erysipelas, which lasted three months. In the following August, about two months after recovering from the erysipelas, her nose broke out.

After attending various doctors, she entered the Cork Union Hospital where the sore was scraped under chloroform four times. The spread of the disease seems to have quickened into activity, for in about three months after last scraping the entire nose and greater part of both cheeks became involved as represented in the accompanying photograph, taken immediately before her admission to the Light treatment of the City Hospital for Diseases of the Skin.

Condition on admission, May 8th, 1902.—She presented an extensive yellowish dark encrustation, involving the alae nasi, tip and bridge of the nose, the prominence of both cheeks, and greater part of upper lip. On removing crusts from cheeks, a red moist ulcerating surface was exposed which bled easily. The nasal

cavity was much encroached upon by ulceration and crust formation; on removal of the latter numerous vegetations could be seen.

Chest examination presented nothing abnormal.

Kidney secretion.—Acid, specific gravity 1·030. No albumen nor sugar. Microscopic examination gave negative results.

Sittings, Finsen Light.—Thirty-two of fifteen minutes, and twenty-four of one hour's duration, to cheeks.

X-rays to Nose.—Thirty-eight exposures of ten minutes, the cheeks having been first protected by lead foil.

Case 2.—A girl aged 31. Unmarried. Dressmaker.

Family history.—Parents both alive and healthy. Four sister living and healthy, two brothers living, one of whom is suffering from pulmonary tuberculosis. History of tuberculosis on mother's side.

Personal history.—Except for an attack of gastric when fifteen years of age, she always enjoyed good health. Sometime after the attack mentioned she noticed a small red pimple on left side of face, but did not attach much importance to it until eighteen months or two years later, when she consulted a doctor who told her she had lupus, and scraped it ten or twelve times. As usual the lupus process though delayed in its course was not long in resuming its slow but unceasing activity, until the disease had assumed the character fairly well represented in the accompanying photograph, which was taken immediately before her admission to the Light treatment.

Condition on admission to City Hospital for Diseases of the Skin, December 6th, 1901.—The disease is distributed over both cheeks, the patch on the right, the larger of the two, being about the size of five-shilling piece. There is destruction of a portion of the alae nasi. The septum perforated and reduced to a mere stump. Both nostrils shrunken, the tip of the nose thickened and infiltrated gave to the face an expressionless appearance. Connecting the patches on both cheeks is a band of ulceration horse shoe in shape, involving the greater part of the bridge of the nose. On removing the adherent scales with forceps from patches

on cheeks, the outline of the ulcer became well defined, its border undermined and wavey, the floor irregular and granular.

Chest examination presented nothing abnormal.

Kidney secretion.—Specific gravity, 1·027. Acid reaction. No albumen or sugar.

Microscopic examination of several scrapings revealed absence of tubercle bacilli.

Sittings, Finsen Light.—One hundred and forty-one of fifteen minutes, and twenty-two of an hour's duration.

Case 3.—A girl aged 21. Unmarried. Shop assistant.

Family history.—Father and mother both alive. Mother suffers from chest, and often spat blood. Four sisters and one brother, all living and healthy.

Personal history.—Since a child she always suffered from swellings in the neck. About five years ago she had an abscess lanced on right cheek. The doctor while dressing it pricked the right nostril through accident with his scissors, the wound festered, tip of nose became swollen, red, and painful, associated with a sensation of pins and needles in the part. She was admitted to one of the city hospitals in December, 1898, and scraped under chloroform. Between that time and December, 1901, she had four scrapings at intervals of about six months each. But the ulcer continued to spread, the pain with the peculiar sensation of pins and needles persisted.

Condition on admission to Light treatment.—On April 7th 1902, she was admitted to the Light treatment of the City Hospital for Diseases of the Skin, presenting a small well defined ulcer, involving right alae nasi, and extending up right nasal cavity, the mucous membrane of which is swollen, granular, and bleeds easily. There is destruction of free border of right alae nasi. Tip of nose pale blue in colour, much swollen and infiltrated, with nodules projecting beneath the skin.

Chest examination.—On inspection slight impairment of movement was noticeable over apex of left lung, with impairment of percussion note over same area. Deficiency of vesicular murmur on auscultation, but absence of any crepitation.

Case I.—Before Treatment.

Case I.— After Treatment.

Microscopic examination.—Tubercle bacilli were found in some of the scrapings examined.

Kidney secretion.—Acid reaction, specific gravity 1·020. No albumen or sugar.

Sittings, Finsen Light.—Sixty-eight of fifteen minutes, nine of one hour's duration.

Case 4.—A boy, aged 13.

Family history.—Except for an attack of whooping cough, chicken pox, and measles, he has always enjoyed good health. When he was four years of age, about six months after his having had the measles, his mother noticed a little red pimple on the left cheek, which remained unchanged in size for three or four years, when it began to increase slowly. His mother becoming uneasy brought him to one of the city hospitals in 1895, where she was told the boy had lupus. Between 1895 and 1901 she brought him to four other hospitals, where he remained for periods ranging from three to twelve months, during which time he was operated on six times, thrice under chloroform and thrice without. But as the sore never completely healed and latterly began to spread, an operation for excising the piece was recommended, to which his parents would not submit.

Condition on admission to Light treatment.—On December 6th, 1901, he was admitted to the Light treatment of the City Hospital for Diseases of the Skin, with a small, nearly circular, ulcer, a little larger than a shilling, situated on left cheek on a level with the angle of the mouth, and nearly midway between it and the lobe of the left ear. The surface of the ulcer was raised and infiltrated, its edge well defined and studded with typical apple jelly nodules.

Chest examination revealed nothing abnormal.

Microscopic examination gave negative results.

Kidney secretion.—Acid reaction, specific gravity 1·022. No sugar or albumen.

Sittings, Finsen Light.—Seventy-five of fifteen minutes, and nine of one hour's duration.

NOTES ON URINARY CHEMISTRY.

By Walter G. Smith, M.D. (Dubl.);

Ex-President R.C.P.I; Physician in Ordinary to H.E. the Lord Lieutenant; Physician to Sir P. Dun's Hospital.

I.—On Leucin as a Bulky Urinary Sediment.

In December, 1901, I was asked by a lady to examine the urine of her daughter, aged 23 years, whom I have never seen as a patient. The young lady had to be careful about her diet, but is, I am informed, in excellent health in every other way, except in one particular. For about two years, on and off, she has suffered from hypogastric pain and a frequent desire to pass water. These symptoms are specially troublesome at night, and the pain sometimes wakes her three or four times. The pain is, perhaps, worse after eating certain things, *e.g.*, rhubarb or uncooked apples, or if she has had claret for dinner.

The first specimen of urine which I received in December, 1901, showed no peculiarity of colour. It was acid, and free from albumen or sugar. It deposited a considerable white sediment, about ⅛-inch in depth, which resembled in appearance an ordinary phosphatic deposit.

When examined under the microscope no crystals were seen either of uric acid or of octahedral calcium oxalate, and no tubecasts or organic structures of interest. The sediment was found to be entirely made up of :—

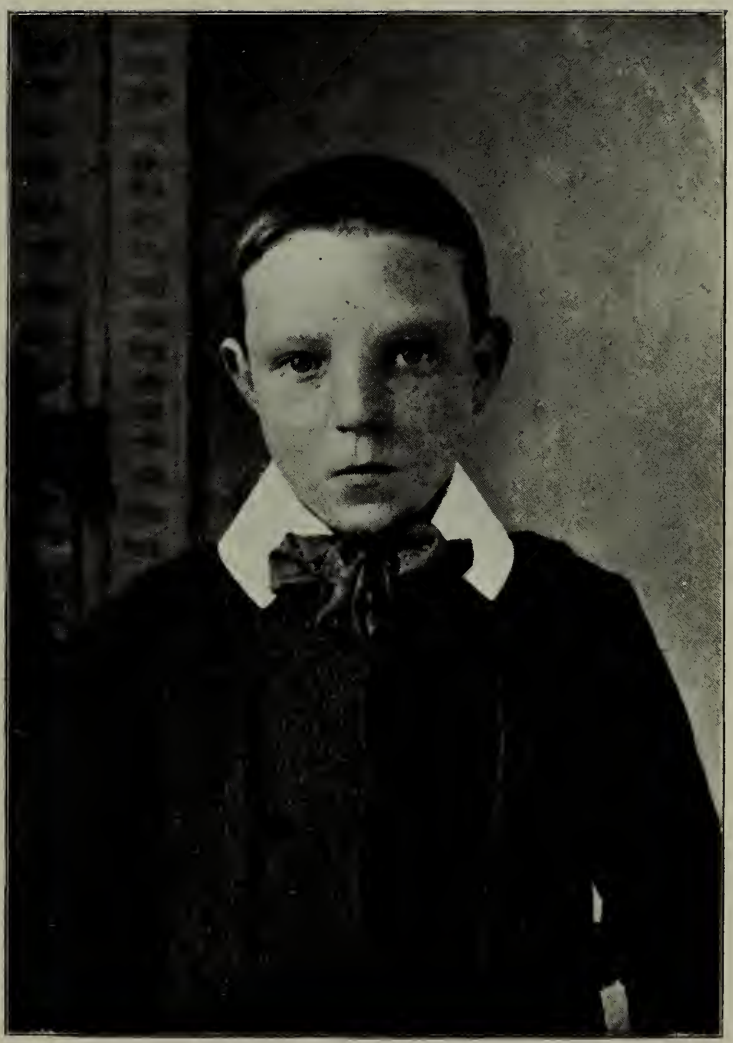
(*a*) Minute clear spheroids ;

(*b*) Larger bright spheroids ;

(*c*) Discoid bodies.

These last bodies were marked with fine concentric lines,

Case IV.—Before Treatment.



Case IV.—After Treatment.

and the periphery appeared granular, or else exhibited fine radial striæ. (*See* Fig. 1.*)

The urine was examined upon several occasions subsequently : twice again in December, and once in April, 1902.

None of the discoid bodies were observed a second time ; but in the urine passed on December 4th and December 31st a few small clear spheroids were noticed, in association with ordinary crystals of uric acid and octahedra of calcium oxalate. In two specimens (April, 1902) only amorphous urates, free uric acid, and calcium oxalate were detected. After the morning's urine had stood for two days a few groups of bright stellar, acicular crystals were seen.

I submitted the crystals to the inspection of several of my medical friends, and am much indebted to Dr. Alcock (at that time assistant to Dr. Purser, Professor of Institutes of Medicine), not only for his drawings of the crystals, but also for the trouble he took in the preliminary chemical examination.

However, as there were some points of difficulty regarding the solubility, and behaviour to reagents, of the crystals, I handed over the sediment (purified by washing with dilute alkali in order to free it from uric acid or urates) to Dr. Emerson Reynolds, who most kindly investigated the matter and supplied me with some valuable notes embodying his observations. The preliminary examination showed that the deposit did not contain uric, oxalic, or phosphoric acid ; and had no reducing action upon copper salts.

The spheroids polarised light, and exhibited a central black cross.

The precipitate was insoluble in dilute alkalies, but was dissolved by HCl (25 per cent.), and by strong H_2SO_4.

* *Cf.* drawings in Gamgee's *Physiol. Chem.*, II., p. 240. Sheridan Lea, *Chem. Basis of the Animal Body*, p. 149. Neubauer and Vogel, *Analyse des Harns*. 1898. Tafel I, Fig. 5 (several forms).

From Dr. Emerson Reynolds' notes I extract the following data :—

A portion of the deposit was dried and examined.

(*a*) Heated in a melting-point tube it partially fused below 180° C., but did not completely liquefy even at 210°, indicating that it consisted of a mixture of two substances of different fusibility.

Ordinary leucin melts about 170°, but an isomer is known which does not melt at 210°.

(*b*) A portion heated more rapidly in a rather wider tube gave a feathery sublimate (a leucin character); and the residue charred with an unpleasant smell.

(*c*) The purest portions gave off ammonia freely when heated with soda-lime.

(*d*) A portion tested for sulphur did not afford any trace of that element.

The purified deposit was very slightly soluble in alcohol, the solution when filtered off and evaporated to dryness yielding a very faint residue. Ordinary leucin requires 1,040 parts of 98-per-cent. alcohol for solution at mean temperature. Impure leucin is more soluble in water and alcohol. Perfectly pure leucin crystallises in snow-white, glistening plates.

When another portion was boiled for some time with water, it partially dissolved, and the solution on evaporation left a residue which included some of the granules, and some more distinctly crystalline groups.

When the boiling aqueous solution was very carefully treated with neutral copper acetate and evaporated over sulphuric acid, a few perfectly distinct, rich deep blue (with purple shade) crystals were obtained, similar to those afforded by leucins.

All these properties point to the conclusion that the deposit included at least *one* leucin.

It is known that the amido-acids of the leucin type can furnish both chemical and physical isomers, which differ materially in melting-points, solubilities, and optical properties.

Leucins are amido-derivatives of caproic acid ($C_6H_{12}O_2$), the sixth term of the series of fatty acids. Leucin = $C_6H_{11}NH_2O_2$. There is reason to believe that, as a physiological compound, leucin is either :—

a-amido-(normal) caproic acid ; or,
a-amido-isobutylacetic acid.

This latter form is known to exist in three modifications, two of which are optically active, owing to the presence of an asymmetric carbon atom :—

$$(CH_3)_2.CH.CH\left\langle\begin{matrix} H \\ | \\ C \\ | \\ NH_2 \end{matrix}\right\rangle COOH.$$

It evidently, therefore, may be a difficult matter, in a given case such as the present one, to decide whether only one leucin is present or not,

Schulze and his pupils have shown that optically inactive leucin (prepared from vegetable albumen) is *a*-amido-isobutylacetic acid ; and Dr. Bernhard Gmelin has carefully investigated the constitution of three leucins prepared from (*a*) yeast, (*b*) casein, (*c*) albumen of hæmoglobin. Their solubilities in water and alcohol varied considerably. Thus, at 19°, yeast-leucin and casein-leucin required 29 parts of water for solution, and hæmoglobin-leucin 45·8 parts. At 17°, casein-leucin required 1,385 parts of alcohol (99 per cent.). All three forms were dextro-gyrate.

Schulze converted the leucins into their corresponding oxyacids, and then reduced these to the fatty-acid series, and his results appear to establish the identity of the three fatty

acids so obtained with isobutylacetic acid, and not with normal caproic acid.

The causes of the differences in the properties of leucins from different sources may lie in :—

(1.) Chain-isomerism : *i.e.*, differences in the constitution of the fundamental fatty acid.

(2.) Position-isomerism : position of the NH_2 group relative to the carbon atoms.

(3.) Physical isomerism : *i.e.*, spatial relations of the atom or atom-groups, around an asymmetric carbon atom.

Now there are, theoretically, eight possible caproic acids, and seven of these are known. From these may be derived thirty-one isomeric amido-acids.

But if we accept Schulze's and Gmelin's proposition that isobutylacetic acid is the parent acid, we may exclude the derivatives due to chain-isomerism.

From isobutylacetic acid four amido-acids are possibly deducible in virtue of position-isomerism. But three (β, γ, δ) of these seem to be improbable from the known reactions of leucin, and hence we are restricted to the conclusion that leucin represents *a*-amido-isobutylacetic acid.

There remains then only one adequate factor in explanation of observed differences in properties, viz., physical isomerism. Gmelin considers that the three dextrogyrate leucins which he has prepared realise the complementary form of the lævogyrate modification which Schulze obtained by the agency of Penicillium glaucum, from inactive *a*-amido-isobutylacetic acid. Accordingly we are led to the belief that differences in the properties of leucins may be concerned not solely with *one* modification thereof, but may depend upon a varying mixture of optically active forms. For example, inactive leucin is the least soluble in water (1 : 160 parts). Is it merely a molecular mixture, or, is it a compound molecule formed of two optically active moieties ?

From his cryoscopic determinations Gmelin concludes that inactive leucin is only a molecular mixture, and is not a true compound, such as :—

$$H_2 = N - C_5H_{10} - COOH$$
$$HOOCC_5 - H_{10} - N_2 = H$$

Similarly, with alanin and glycocin. (*Zeitsch. für physiolog. Chem.*, XVIII., 1894, 21.)

Of the physiological or pathological significance of leucin little can be said. All are agreed that it is a decomposition-product of proteids; and, as regular end-products of albumen-disintegration, we find leucin, tyrosin, and asparaginic acid. The two last compounds are aromatic derivatives. The peculiar odour from the axilla and between the toes has been thought to be associated with decomposition-products of leucin (Hammarsten), but this is doubtful.

According to Radziejewski most organs of the body yield a little leucin (Neumeister, *Physiolog. Chemie*, I., 254), whereas tyrosin is not found normally in perfectly fresh tissues.

Leucin is very rarely found in urinary sediments, and I do not know of any previously-recorded case in which it has appeared as a macroscopic sediment in bulk, and unassociated with tyrosin.

Neubauer and Vogel (*Analyse des Harns*, 10 Aufl., 1898, 280) go so far as to state that it is not to be looked for in urinary sediments. Nevertheless, leucin and tyrosin have occasionally been observed to separate in the crystalline form spontaneously from pathological urines, but, as a rule, special procedure is needed to secure their crystallisation. Tyrosin is less soluble than leucin.

In regard to prognosis we recognise that the amido-acids, leucin and tyrosin, have been discovered in the urine chiefly in cases associated with rapid destruction of liver-cells, *e.g.*, acute yellow atrophy of the liver. Yet Herter states that he knows of instances " of obscure febrile disease in which these

bodies have appeared in the urine for several days in succession, and in which the patient has made a good recovery." (*Lectures on Chem. Pathology*, 1902.)

In the *Brit. Med. Jour.*, Sept. 4, 1880, p. 381, there is an abstract of a paper by Dr. E. C. Anderson, who states that he had detected leucin and tyrosin in the urines of a large number of cases representing most diverse conditions. Sometimes he found leucin alone, sometimes tyrosin only, and sometimes both. He recorded only cases in which leucin and tyrosin existed in the urine in very appreciable amount; and he believes that leucin is probably present in small amount in the urine of most people, except those in the highest state of health who lead temperate active lives.

I do not know of any confirmation of these somewhat surprising statements.

Appendix.

Leucin has been reported as having been found, pathologically, in :—

(1.) Acute yellow atrophy of the liver. In the blood, liver, and urine.

(2.) Acute phosphorus-poisoning. Liver and urine.

(3.) Cirrhosis of the liver. Liver and urine.

(4.) Continued fevers : typhus and variola. (?)

(5.) Leuchæmia. In the blood.

(6.) Cholera-stools.

(7.) Gangrene of the lung. In the sputum.

(8.) Pus and dropsical transudates.

(9.) Atheroma.

Some of these observations need confirmation.

II.—On a Reaction between Urea and Formaldehyde and its Clinical Significance.

Some time ago, wishing to examine microscopically a patient's urine, which was turbid with amorphous phosphates,

I cleared it with acetic acid, and added a little formalin for preservation until I had leisure to examine it next day. The urine was free from albumen and sugar. Next day I noticed that a white deposit had formed in the urine. This was separated by the centrifuge and when examined under the microscope was found to consist wholly of :—

(*a*) Discoid bodies.

(*b*) Very small oblong and oval bodies, single, or arranged in pairs ; somewhat resembling large bacteria.

The discoid bodies appeared granular with a radial striation, and many of these were split at one side, probably owing to pressure. They stain with methylene blue (Earl), and are doubly refractive, showing a dark cross similar to that of a starch-granule (W. H. Thompson).

At first sight the discs recalled to mind the microscopic characters of leucin, but closer examination soon dispelled this idea.

Since neither I nor any of my medical friends had seen anything exactly similar previously, the question arose : What was the nature of the deposit ? One naturally thought of a possible interaction between formaldehyde and some constituent of the urine, the most likely being urea.

Dr. Earl found that by adding formalin to healthy urine a similar deposit could be obtained, and I ascertained that an aqueous solution of pure urea, when mixed with commercial formalin, slowly deposits a white sediment which consists entirely of the discoid bodies above described, about twice the diameter of a red blood-disc. The deposit is very insoluble in water and alcohol, and is not easily attacked by acids or alkalies in the cold.

I next consulted Dr. Emerson Reynolds, Professor of Chemistry in the University of Dublin, and I am much indebted to him and to his assistant, Mr. E. Werner, for information, and for references.

It is well known that aldehydes, especially the lower members of the series :—

(*a*) Readily polymerise.

(*b*) Are prone to form condensation-products with other substances.

(*c*) Act as reducing agents.

A familiar example of polymerisation is afforded by the substance known as *paraform*, which is sold in the form of tablets for purposes of disinfection.

The concentrated aqueous solution of formic aldehyde not only contains gaseous formaldehyde, CH_2O, but also the hydrate, $CH_2\begin{Bmatrix}OH\\OH\end{Bmatrix}$ and probably other hydrates.

On complete evaporation of the solution the solid anhydride, paraformaldehyde, is left—possibly diformaldehyde $(CH_2O)_2$.

As an example of a condensation-product may be cited the preparation known as urotropin. If a little liquor ammoniæ be added to commercial formalin, and the liquid cautiously evaporated to dryness, the two gaseous bodies unite, with exit of water, and a white solid remains, which is urotropin :—

$$6\,CH_2O + 4\,NH_3 = 6\,H_2O + (CH_2)_6\,N_4$$

= hexamethylene-tetramine.

Chemists have long been acquainted with the fact that urea unites with aldehydes in the cold, and Dr. Emerson Reynolds investigated some of these reactions 30 years ago. At that time formaldehyde did not come under consideration. Now methylene-, ethidene-, and ethylene-ureas have been prepared.

Within recent times several communications have appeared in respect to the combinations of urea with formaldehyde, and I will briefly refer to them.

In 1889 Hölzer and Lüdy prepared from formaldehyde and urea the simple combination $C_2H_4N_2O$.

The constitution of this compound may be taken as either

$$CO\begin{cases}N\,.\,CH_2\\NH_2\end{cases}:$$

or as,

$$CO\begin{cases}NH\\NH\end{cases}CH_2 \text{ (Lüdy).}$$

This latter formula would correspond to methylene-urea, and the reaction for its production is—

$$CO\begin{cases}NH_2\\NH_2\end{cases} + CH_2O = H_2O + CO\begin{cases}NH\\NH\end{cases}CH_2$$

This compound decomposes at 200° with evolution of ammonia and at 240° melts to a brown liquid, which solidifies on cooling, and the residue is soluble in hot water. (*Ber. der Deutsch. chem. Gesellsch.*, 17,659 : 18,3302 : 29,2751. *Cf.* Lüdy, *Wien. Akad. Ber.*, 118, II., b. 191.)

In 1896 and 1897 Goldschmidt further investigated the products of the interaction of carbamide (urea) with formaldehyde. He obtained a compound, $C_5H_{10}N_4O$, which corresponds to 2 molecules of carbamide + 3 molecules of formaldehyde, and its probable constitutional formula is :—

$$NH_2\,.\,CO\,.\,NH\,.\,CH_2\,.\,CO\,.\,CH_2\,.\,NH\,.\,CO\,.\,NH_2.$$

He suggests that this reaction might possibly be used for determination of urea, since the precipitation seems to be almost quantitative.

The urea was dissolved in dilute HCl and treated with excess of formaldehyde. The precipitate is not acted on by alkalies, but is decomposed by strong acids. (*Ber. der chem. Gesellsch*, 1896, bd. III., 2,638.)

In another communication Goldschmidt states that carbamide, when allowed to remain along with the excess of formaldehyde (40-per-cent. solution) in alkaline solution, yields a white precipitate, $C_3N_2O_3H_8 = CO\,.\,(NH\,.\,CH_2\,.\,OH)_2$, which is soluble in hot water, and is precipitated by alcohol as a gelatinous mass. After two recrystallisations from water it appears to be transformed into $C_6N_4O_5H_{14}$.

In a neutral solution he finds that the chief products are the above, $C_3N_2O_3H_8$; and a body, $C_5N_4O_5H_{14}$, insoluble in water (*Jour. Chem. Soc.*, April, 1898, 178; from *Chem. Zeit.*, 1897, 21,460).

In this conflict of formulæ I will adopt as the simplest Lüdy's expression for methylene-urea, $CO\langle^{NH}_{NH}\rangle CH_2$, which is accepted in Richter's *Organic Chemistry*, 1900, p. 400.

I could not detect any reaction, at least no precipitate was found, upon mixing aqueous solution of thio-urea (sulpho-urea, Reynolds) with formalin.

F. v. Hemmelmayr, however, has obtained the parallel compound methylene-thiocarbamide, $CS\langle^{NH}_{NH}\rangle CH_2$ by mixing together equal weights of thiocarbamide and chlor-methylalcohol. A white precipitate is formed which is almost insoluble in all ordinary solvents. (*Monatsh.* 12.89.)

I likewise failed to observe any evidence of reaction between uric acid (urate of potassium) and formaldehyde in the cold, but, according to Weber, Pott, and Tollens, diformaldehyde-uric acid ($C_5H_4N_4O_3 . 2\ CH_2O$), can be readily formed, and it behaves as a weak monobasic acid. (*Jour. Chem. Soc.*, February 1898, 66; from *Berichte*, 1897, 30.2514.)

Since formaldehyde is now so frequently employed as an antiseptic, and has probably often been added to urine as a preservative, it is somewhat surprising that the reaction now described has not been, so far as I know, recorded.

To the clinical physician the relationship of formaldehyde to urine presents three points of practical interest :—

(1) It yields with urea a white precipitate (probably methylene-urea), which might easily be mistaken for leucin.

(2) If present in urine formaldehyde will reduce the copper-test, and so introduces a fallacy in testing for sugar.

(3) Formaldehyde interferes with the detection of small amounts of albumen by means of heat and acetic acid.

THE DIAGNOSIS OF PERFORATED GASTRIC ULCER.*

By R. Charles B. Maunsell, M.B., B.Ch. (Univ. Dubl.); F.R.C.S.I;

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The importance of prompt treatment, and, therefore, of early diagnosis, of perforative peritonitis is sufficient excuse for occupying a brief period of your valuable time, even if most of that which I have to say has been already said, perhaps more than once. Reiteration is often necessary to draw attention to opinions, more especially if these opinions run counter to those previously accepted.

In March, 1901, I had the honour of making a communication before the Surgical Section of this Academy, entitled "Some Practical Points in the Diagnosis and Operative Treatment of Perforated Gastric Ulcer," giving full details of four cases of my own, and generalisations from the cases of several other operators; but, although the subject of diagnosis formed a fair portion of the communication, the subsequent discussion was almost entirely limited to details in operative technique, so I determined to change the venue in the hope of learning something of the equally important details of diagnosis, both prior to opening the abdomen, and also after this has been accomplished. At the same time, a short note of a complicated and successful case, which has quite recently been under my care, will serve as a text for some of the remarks.

* Read before the Section of Medicine of the Royal Academy of Medicine in Ireland, on January 30, 1903.

From what one reads and hears it is evident that there are still a few physicians who look upon a surgeon as a kind of mechanic, and to these physicians two thoughts will arise: Firstly, why a surgeon should trouble about diagnosis; secondly, what right has a surgeon to think he has made a diagnosis, considering that most of the cases are seen primarily by a physician, and, as it were, labelled before the surgeon sees them? The answer to these silent queries is, that any man who operates upon a patient without carefully making his own examination and diagnosis is not only unworthy the name of surgeon, but is a distinct danger to the community. Up to the present I have operated upon five cases, three of which were primarily diagnosticated by my colleague Dr. Lumsden, and one by my friend Dr. Copley; in all five an absolute diagnosis was stated before operation, although I would not state more than perforative peritonitis in the first case. By strictly adhering to this rule of double diagnosis, it ought to be possible to reduce considerably unnecessary or ill-planned operations.

For the purposes of diagnosis and treatment it is necessary to divide cases of gastric perforation into three main classes—viz., acute, sub-acute, and chronic—as given by Messrs. Mayo Robson and Moynihan in their really marvellous record of gastric surgery, entitled *Diseases of the Stomach and their Surgical Treatment*, published in 1901; and a sub-class, to which attention was drawn in my previous communication, of which Cases Nos. 1 and 3 were examples—viz., *cases of double onset.*

Chronic perforations are these in which protective adhesions have formed before actual perforation, and the symptoms are either evanescent or followed by subphrenic abscess, &c. Sub-acute perforations are these in which the stomach is usually empty, the perforation small, and the limited peritonitis may either subside, leaving adhesions,

or may form an abscess, or more or less slowly spread until it merges into general peritonitis.

Acute perforations are these in which none of the favourable circumstances are present, and extravasation is general from the start, and absolutely fatal unless promptly treated by operation. Double onset perforations are these in which a collection of virulent fluid or an abscess following one of the two first varieties is localised, at first in such positions as the lesser sac of peritoneum, or in the upper abdomen above the transverse colon, and secondarily bursts, causing acute general infection.

It would be quite out of the question to deal with the chronic and most of the sub-acute cases to-night, as they open up the vast subjects of subphrenic abscess and other interesting conditions, so we will confine our attention to the more acute varieties.

My own rather limited experience, combined with a fairly careful perusal of current journalistic medicine and surgery, leads me to the following tentative opinions :—

With regard to sex and age, young women between the ages of twenty and thirty are the most frequent subjects of perforation ; male cases are usually rather older, and are by no means infrequent. A good practical thing to remember is, that whether a patient is male or female, young or old, perforation may be present.

The previous history of gastric ulceration may be obtained, but very frequently only dyspeptic or gastralgic symptoms are mentioned, and in a few cases even these are absent. This is not to be wondered at, considering that it is usually the rapidly forming " punched out " ulcer which leads to acute perforation. The onset of symptoms is always sudden, usually very severe, and frequently takes place during some exertion. The pain is intense, stabbing in character, or the patient feels that something has given way, and may have

the sensation of trickling hot fluid; it is referred to the epigastrium, may shoot round the left hypochondrium, or out below the left scapula, or may be felt above the clavicles; after a while it may be referred also to the right or left iliac fossa, and later may become general over the abdomen. The pain does not leave one place and shift to another, as in reflex pains, but the starting point in the epigastrium remains painful and tender; in double onset cases iliac pain may be the first complaint in the second onset, and is likely to be mistaken for appendicitis. The pain usually doubles the patient up at first, but soon abates to a varying degree.

Collapse is a very variable symptom, some cases dying rapidly before efficient treatment can be adopted, whilst others are able to walk to hospital in a very short while after the accident, as in my fourth case; in my third case shock was fairly marked, and in the fifth the patient became unconscious for some minutes, and was very weak for several hours. Shock tends to become less during the five or six hours following perforation.

Vomiting is common just before the onset, but usually ceases or becomes infrequent subsequently until peritonitis becomes established, when vomiting returns, becomes yellow and then black, accompanied in many cases by distressing hiccough. This black vomit, &c., is only seen in neglected cases, which by this time are practically beyond all aid. Hæmatemesis or melæna are very rare. The urine is usually passed freely and is of high sp. gr.; the bowels are usually constipated, and enemata are liable to be retained owing to intestinal paresis, but in some cases there may be diarrhœa.

During or just after the period of shock the patient may crave for a drink, but subsequently thirst is not by any means a prominent symptom.

Upon examination we notice a rather dusky, anxious, drawn face, and an anxious, restless manner, but the patient

does not toss about as in hæmorrhage ; decubitus is usually dorsal, with the knees and hips slightly flexed, and the head and shoulders slightly raised ; the respirations are shallow, rather increased in frequency and thoracic in type ; the tongue is slightly furred, but is moist ; the temperature is normal or subnormal, unless in late cases, and the pulse anything from 60 to 110, tending to increase by about five beats for each hour after the first five or six after the onset ; it is in most cases regular and of good volume. The frequent, wiry pulse, so commonly described, means a late case with general peritonitis. The abdomen is flat in males or nulliparous females, distended in those who have borne children or have flabby abdominal muscles.

On palpation the apex beat of the heart is displaced upwards, especially in the cases with flat abdomens ; the abdominal muscles are rigid, and pain is complained of on pressure over the upper abdomen. If respiration is stopped pressure can be tolerated, but as soon as respiration starts again pain is intense, and friction may be felt in a few cases.

Upon percussion tympany is practically uniform, except over the stomach, which in most cases retains its own peculiar note as, to quote from my previous paper, "a perforated and a collapsed stomach are by no means synonymous terms." Dulness may be present in the flanks, but it is only a fairly late sign ; the abdominal tympany encroaches upon the thoracic area and the liver dulness is generally greatly diminished or abolished—due, I believe, to paralytic distension of the intestines pushing up and rotating the liver, and not often, as is stated, to free gas separating that viscus from the abdominal wall.

Having got so far, some one may say we have only diagnosticated an acute "peritoneal catastrophy," and may ask for the differential diagnosis. The number of lesions which require to be differentiated in any given case depends so much

upon the ability of the diagnostician that this would be a hopeless task, unless we take for granted that we recognise the case as one of perforative peritonitis, and then try to find out what has perforated.

There are two non-perforative diseases, however, which cause much difficulty, even to the most skilled; these are diaphragmatic pleurisy and acute pancreatitis.

With regard to the perforative lesions, we may roughly divide them into causes in the upper and causes in the lower abdomen, using the transverse colon as our line of division, and merely point out in general terms the lines which might be followed to reduce the diagnosis to one or a few lesions. The common causes in the lower abdomen are tubal or ovarian abscess, perforation or gangrene of the appendix, and ulceration or sloughing of the intestines. These in addition to their own special features and history, have some points in common which distinctly point to the lower abdomen—viz., the pain and rigidity are in the lower abdomen or referred to the umbilicus, and there may be early and increasing pain and difficulty in micturition owing to involvement of the peritoneal surface of bladder, and there is very frequently pain referred to the external genito-urinary organs. This is frequently a most remarkable and very early sign of perforation in typhoid fever. In the upper abdomen, the common things are gastric and duodenal perforation, which can hardly be differentiated from one another with certainty, and abscess of the liver or empyema and sloughing of the gall bladder and bile ducts. We could hardly now enter into the differential diagnosis of these, and will merely state that these upper abdomen lesions never cause bladder symptoms unless the case has gone so far that there is general peritonitis.

So far we have been guessing at lesions from outside, now it is time to open the abdomen and still further perfect our diagnosis, or perhaps correct it, and as an easy method of

describing this I may relate my last case, which has not yet been published :—

Miss B. K., aged twenty-seven years, was sent to me by Dr. Copley on October 10th, 1902. The history was as follows :— She stated that three years ago she got severe pain in the stomach and between the shoulders, vomiting and hæmatemesis. She was then treated in the Royal City of Dublin Hospital, and after a stay of a month in hospital she went home to the country apparently cured. About every three months after this pain occurred, and was relieved by the dispensary doctor. Lately she had returned to Dublin, and on October 9th, at 1 p.m., she ate a pork chop ; at 4.30 p.m., she had some tea, and then went to the station to see off some friends. Whilst there she was suddenly seized with pain, and fainted. Her friends placed her in a cab and drove her home, where she remained that night and all next day without seeing a doctor, her friends applying turpentine stupes, and giving milk and soda and brandy. At 5 p m., on October 10th, Dr. Copley was sent for, and found her in great pain—tem. 101°, pulse 128. He told them to immediately bring her to Mercer's Hospital, while he drove off to inform me. I saw the patient in hospital at 6 p.m. ; the abdomen was opened at 7 p.m., and she was put back to bed before 8 p.m., the operation having lasted a little short of an hour.

As it was 26 hours since perforation took place, it would be useless describing the pre-operative diagnosis, beyond saying that it was an advanced case of general peritonitis, with very marked distension for a nullipara. Upon opening the abdomen above the umbilicus, the first thing that I noticed was that no gas escaped, but that very distended and inflamed intestines protruded in a very troublesome manner. This absence of obvious escape of gas had been previously noticed in at least one of my other cases, and it must be that the presence or absence of much free gas depends upon the class of bacteria set free in the peritoneal cavity. No fluid welled from the wound, which was different from the other four cases, where abundant fluid

immediately appeared. I now quickly packed off the intestines and drew down the stomach, which was distended with gas; this distension I have invariably noticed, even though the perforation is freely open. Careful search failed to reveal any perforation on the anterior wall or in the duodenum, and on turning up the transverse mesocolon no adherent or thickened spot could be felt or seen on the posterior aspect. We began to think that the diagnosis might be wrong, so I thrust my hand down into the plevis, and found that it was full of fluid. Whilst keeping the left hand inside, an incision was rapidly made as if for appendicitis, and fluid at once flowed out, the appearance and smell of which at once pointed to the stomach as the origin, so a clip was placed on the lips of the wound, and we returned to the stomach. The appearance of peritoneal fluid arising from stomach perforation is thin and greenish at first; later greenish yellow, with numerous tripe-like flakes of lymph floating in it and adhering to the intestines, etc. The smell is not fæcal in character like an infection lower down, where the *Bacillus coli,* etc., form abundance of fæcal-smelling gases. The smell in the class of cases under consideration is a peculiar nauseating, sour smell, which always reminds me of the smell of a badly-kept fowl-run. The stomach was now picked up, and the omentum freely divided along the greater curve, thus opening the lesser sac of peritoneum, and on working deep down to the left gas and fluid gushed up, and a perforation as large as a sixpenny piece was, with difficulty, demonstrated very high up on the posterior wall, almost at the junction with the œsophagus.

The operation was concluded as has been described in the previous cases, except that, owing to the tremendous paralytic distension of the stomach and intestines, it was considered necessary to incise the stomach, large intestine. and small intestine. and empty them of gas before the final douching was performed; also a wick of gauze was left, passing down to the site of the sutured perforation. This was removed in 36 hours.

The case made an absolutely uneventful recovery, the only detail in after treatment worthy of notice being that the position

of the patient was frequently changed to try and ward off hypostatic lung complications.

I think it has been fairly demonstrated that diagnosis does not cease when the case is handed over to the surgeon, and yet I have not mentioned the host of complications which have to be diagnosticated and promptly treated during the post-operative period.

It would be out of place in this section to refer to operative treatment, but I would like to say that it is foolish for people to talk of doing these operations by the light of a dip candle, with the patient on a kitchen table, and no appliances except a knife, a needle, and a piece of thread. Of course, any operation, even amputation at the hip-joint, can be done with a knife, a needle and a piece of thread, but it is not what can be done, but what ought to be done, is the question for us to solve ; and my conviction is, that it would be kinder to let the patient alone altogether if we are not determined enough to do a thorough operation, carefully cleaning out every infected corner of the peritoneal cavity with gauze sponges and normal saline solution.

A CASE OF SPLENIC ANÆMIA.*

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"Anæmia Splenica is a disease characterised by a progressive oligæmia arising without appreciable cause, which gives rise to grave disturbances of all the organic functions—to œdemas, hœmorrhages, irregular fever, followed constantly by death; accompanied by notable tumefaction of the spleen and also of the liver, a tumefaction independent of any preceding morbid condition and not associated with any leuchæmic alteration of the blood." Such is the definition of the disease as given by Banti in the year 1882, to whom is due the credit of having first given to the profession any complete account of the affection. Prior to his article, isolated cases had been described by Woillez as far back as 1856, and by Collin, Wunderlich and Griesinger, Mueller, Landouzy, Pye-Smith, and Strümpell, but they had received little recognition. More recently Bruhl has written an exhaustive account of the disease in the *Archive de Médecine* for 1891, under the title "Splénomégalie Primitive," including in his article the history of fourteen cases, and "A critical Summary of the Literature on Splenic Pseudo Leukæmia" appears in the *American Journal of Medical Science* for 1899 from the pen of Sippy.

The disease now finds a place in all text books of Medicine, but as yet the total number of recorded cases is small, according to Dr. West, it probably does not exceed thirty. The notes of the following case may therefore be of interest :—

On June 8th, 1902, a man aged 45 years was admitted into

* Read before the Section of Medicine of the Royal Academy of Medicine in Ireland, on March 13, 1903.

the Adelaide Hospital under my care. He lived near Tralee, in Co. Kerry, and was by occupation a farmer. His family history revealed nothing of importance, and until the commencement of his present trouble he had been a perfectly healthy man, with the one exception that about 30 years ago he suffered from an attack of typhus fever.

The history of his illness is very brief. He does not remember when he first felt any symptoms, but thinks that for the six months previous to his admission to hospital he had been gradually getting weaker—less able for his work about the farm—easily made breathless by exertion. He also felt what he described as a "gurgling pain" in the left side, and at intervals had rather sharp paroxysmal pain in the same side. He further noticed that his trousers round the waist were getting tighter, and that while given plenty of room for expansion by the local tailor, he had recently to keep one or two of the top buttons undone. So little did his symptoms trouble him that it was not until about three weeks before admission that he consulted a doctor. He had a more severe attack of pain in the side than previously, and his wife insisted on his obtaining medical advice.

When examined a tumour was found in the abdomen, and he was advised to come up to Dublin without delay. His appearance when I saw him was not suggestive of any serious mischief, He was a well-nourished man; the skin of his face bronzed by constant exposure, perhaps hid the anæmia which was present. His pulse was regular, good volume, 84 per minute; temperature normal; heart sounds healthy; lungs normal. On examining the abdomen a large prominent tumour was seen occupying almost the entire left side of the abdomen. On palpation it was smooth on the surface, but a distinct friction rub could be felt; the lower end was rounded and extended to within two fingers' breadth of the crest of the ilium; the upper end was lost under the costal arch. A distinct notch was palpable on the anterior edge, close to the umbilicus. The tumour did not move on respiration nor was it tender to the touch. It was uniformly dull on percussion over the tumour. The friction rub so easily felt was very distinct on

auscultation. The urine was acid, sp. gr. 1024, and contained a trace of albumen.

Concluding that the tumour was the spleen, no accurate diagnosis was possible until a blood count was made, so, accordingly, on the 11th June, with the assistance of Prof. J. Alfred Scott, the blood was examined. The following was the result :—Red blood corpuscles, 4,250,000 per cb. mm.; hæmoglobin, 60 %; leucocytes, 1 in 1000. The more exact examination of the leucocytes showed eosinophils, 4 %; poly morpho nucleur leucocytes, 39 %; mononuclear leucocytes, 4 %; lymphocytes, 53 %. The leucocytes were rather fewer than normal, but there was a distinct relative increase of lymphocytes, otherwise the blood conformed to the chlorotic type. The case was evidently not one of splenic leucocythæmia.

The absence of wasting and of secondary growths elsewhere was against malignant disease of the spleen. The patient had never been in a malarious country. There was no evidence of tuberculosis, nor were there any symptoms or signs suggestive of cirrhosis of the liver. There was no history of syphilis.

I therefore came to the conclusion that the case was one of splenic anæmia.

In Clifford Albutt's *System of Medicine*, the symptoms of this disease are given by Dr. West. He divides it into three stages :—

The initial stage in which the symptoms are those of extreme anæmia, with great loss of muscular power, and some wasting of muscle ; though usually without emaciation.

The second stage is characterised by progressive enlargement of the spleen, and by attacks of severe pain in the splenic region ; the anæmia is more profound, the loss of strength is extreme, and the patients are liable to repeated attacks of bleeding, especially from the nose ; the temperature is raised and of a hectic character.

In the last stage the condition is one of progressive as-

thenia which ends in death ; there is in it nothing especially characteristic.

The affection occurs much more frequently in men than women in the proportion of four to one, and is a disease of adult life. The blood usually displays the character of that found in chlorosis, but as the disease advances the reduction in red cells becomes more pronounced. Perisplenitis is fairly constant, often giving rise to considerable pain and tenderness. Dr. Bruhl says : " It is the painful crisis which is the first symptom which causes unrest. It is that which shows the commencement of the malady."

The liver is not infrequently somewhat enlarged.

Vomiting, nausea, constipation or diarrhœa have all been noticed. The tendency to bleeding is pronounced, the hæmorrhages are rarely profuse and more of the nature of oozing.

Epistaxis is very frequent and usually one of the earliest symptoms.

The temperature is often elevated and of a hectic type, but Bruhl says that fever is unusual.

The nervous system yields no special symptoms ; urinary changes are indefinite ; sometimes albumen is present in small amount.

The circulatory system presents only such changes as are common to all forms of anæmia.

The one important and apparently almost constant symptom which was absent in the present case, was the tendency to hæmorrhage ; the patient gave no history of any bleedings, and he had certainly none while in hospital.

The progress of the case during the first fortnight in hospital was not reassuring. I tried arsenic in increasing doses, as the only drug likely to be of service, but with no good result. The patient was becoming less able for exertion of any kind, partly from increasing breathlessness, and partly from the discomfort

caused by the weight of the abdominal tumour. He also suffered considerably from pain in the side, and was perceptibly getting weaker. A blood count made on the 23rd June, showed that the red cells had further reduced to 3,500,000 per cb. mm., and the hæmoglobin to 50 %. The white cells were unaltered. I therefore decided to delay no longer, and asked Mr. Gordon to undertake the removal of the spleen. This he successfully accomplished, and though an account of the operation does not properly belong to this section of the Academy, I thought it would render the communication more complete to incorporate a brief summary of it as furnished to me by Mr. Gordon :—

"On June 27th, 1902, I opened this patient's abdomen by a long incision through the left rectus muscle. I found the enormous spleen free from adhesion on its outer surface, and the few omental attachments at the lower end were easily separated.

"The division of the splenic ligaments proved both difficult and dangerous. There was nothing of the nature of a pedicle, for the peritoneal reflection at the hilium measured fully six inches vertically. The real difficulty, however, was due not to this, but to the fact that I could not turn over the spleen towards the right in order to bring into view the lieno-renal ligament with the splenic vessels which lie in it. This was owing to the presence of posterior adhesions and to the great bulk of the spleen itself. It was then necessary to pass the needle from in front, and unfortunately in doing so I injured the splenic vein. The resulting hæmorrhage was appalling, and had not Mr. Heuston, who was assisting me, very promptly compressed the vessels, the patient would have died. This compression, Mr. Heuston maintained until I had divided the remaining attachments between clamps and removed the spleen.

"I passed separate ligatures round each clamp, and a silk ligature including all.

"There remained some bleeding points higher up in the under surface of the diaphragm. Time was a matter of much importance for the patient was much collapsed. I thought it therefore best to pack the cavity with gauze and close the greater part of the

abdominal wound as quickly as possible. I should add that I introduced a large drainage tube through a stab puncture in the loin.

" I think I have told all of importance relative to the operation, and the after history does not require detailed description. The gauze plugs were a source of some anxiety. I began by removing them very gradually—one or two strands each day—but in the end I was obliged to get on more rapidly as suppuration had occurred about them. The patient left hospital on August 16th and on August 24th, he took a walk of ten miles."

On the 12th July, a fortnight after operation, a fresh blood count was made. The red cells were 3,750,000 per cb. mm., hæmoglobin 62 %, and white cells 6,300 per cb. mm., or 1 in 600. A month later the red cells numbered 4,400,000, the hæmoglobin 75 %, and the white cells were practically unaltered. After a stay of three weeks at our Convalescent Home, he returned to Kerry in apparently perfect health, a slight discharge still coming from a small sinus in the wound.

On the 13th September I received a letter from him, in which he says : " I felt no inconvenience or fatigue whatever from the journey to Kerry ; and since I came home I have been constantly walking about or standing, and notwithstanding this, I feel much better in health (mentally and bodily) than I have felt for years. I am maintaining the good appetite I had in the hospital, am a sound sleeper, and I am, I believe, gaining in flesh rapidly. So much so that my friends tell me they had not seen me look so well for a long time."

I did not hear from him again until the 22nd December, when in answer to a letter of mine asking him to come up to Dublin to let me examine him, he wrote : " Since I left the hospital I cannot say I have had an hour's sickness. I am up every morning at six o'clock and do all the knocking about and marketing of the farm as well as ever I did. I am ploughing lealand for the last nine or ten days, and don't find it doing me any harm. The discharge is now stopped nearly a month, and I have also increased in weight over one and a half stone since I came home."

On January 10th, 1903, he came up to town, and on the following morning I examined him and found him in perfect health; his weight had increased two stone. Prof. Scott kindly made an examination of the blood, which showed :—Red cells, 4,400,000 per cb. mm. ; hæmoglobin, 85 % ; white cells, 6,600 per cb. mm. There were a few nucleated red blood corpuscles, normoblasts. The differential count of the white cells revealed—poly morpho nuclear leucocytes, 61 % ; mono nuclear leucocytes, 6 % ; lymphocytes, 21 % ; eosinophils, 12 %.

It will be noticed that whereas before operation there was a considerable relative increase of lymphocytes, this count taken six months after removal of the spleen shows a relative increase of eosinophils. The lymphocytes differed from those usually found in normal blood, the proportion of cell body surrounding the nucleas being apparently much increased. The presence of normoblasts was also a new feature.

It only remains for me to mention the pathological appearance presented by the spleen after its removal, and for the following account I am indebted to Prof. Scott, who kindly undertook the examination :—

"The spleen when removed showed a general enlargement preserving much the same shape as when normal. When laid on a table on the convex side, it became very slightly flattened, and measured 12 inches long by 8 inches wide, and 4 inches at its thickest part. It weighed 8 lbs. 2 ozs. The capsule was very considerably thickened in a few places over the surface. In the other parts it did not appear to the naked eye to be abnormal. Section showed it internally to be fairly firm, and much paler than normal. Some dark marks or lines, which gave a marbled surface to the section, was all that could be seen of the spleen pulp. The light masses were round, almost regularly one millemetre in diameter, and covered the whole surface between the lines of the spleen pulp, and to the naked eye, or with a pocket lens appeared to be malpighian corpuscles.

"Microscopical examination showed that the malpighian corpuscles were enlarged until they touched. The spleen pulp was absent; special stains showed a number of red blood corpuscles at the junction of, and slightly into the diffuse edge of the malpighian corpuscle, this being the cause of the dark line visible to the naked eye. Careful examination showed that there was no increase of the trabecular or the reticular connective tissue. The only connective tissue increase being found in the patches of old perisplenitis. The general appearance suggested lymphadenoma rather than any other cause of splenic enlargement."

In reviewing the literature of the subject, it is at once apparent that under the term splenic anæmia are included more than one distinct affection. The confusion is probably due to the fact that a combination of anæmia with splenic enlargement is by no means infrequent.

The term has been applied to the cases which occur in infancy and early childhood, and which in nearly all instances are associated with either rickets or syphilis. It has been used to describe the condition that supervenes as the result of malarial infection. It is used synonymously with the term splenomegaly, a disease in which the enlarged spleen is firm in texture and shows microscopically a great overgrowth of the trabecular framework at the expense of the lymphoid tissue and malpighian bodies; a disease which appears to be rather a primary affection of the spleen than a primary blood disease, and yet one which in its clinical symptoms very closely resembles the case I have brought under your notice this evening.

In my case, however, the pathological changes found in the spleen are totally different, suggesting, as Prof. Scott says, a lymphadenoma rather than any other cause of splenic enlargement, and when we compare the changes found in the blood with those usually found in lymphadenoma or Hodgkin's disease, the resemblance is very striking.

In both there is a diminution of red cells, with the low colour index or blood of a chlorotic type. In both the white cells if not actually diminished in number, are not more than normal, and in both there is a marked relative increase of lymphocytes.

For want of a better name I have entitled my paper "A Case of Splenic Anæmia," a more accurate title would perhaps have been "A Splenic Form of Hodgkin's Disease."

A CASE OF UNUSUALLY SEVERE MEASLES IN AN ADULT.

Second Attack.*

By Dr. J. J. Burgess.

Epidemics of measles are so frequent in their occurrence in this city, and their course, except in the extreme poor, so generally benign, that I have for a long time considered them as sinecures to the physician in attendance, merely requiring of him to see that his patients are isolated, kept warm, fed on a liquid diet, and dosed with a so-called diaphoretic mixture. I am aware we are sometimes brought in contact with desparate cases of broncho-pneumonia in our patients suffering from this disease, more frequently in some epidemics than others, despite, too, all our efforts at prophylaxis. Yet when we consider the large number of cases which pass through our hands without any such untoward complication, I feel we must be led to regard its occurrence as exceptional. That it is a long lane which has no turning is exemplified by the following case, which I venture to think is worthy of being recorded by the exceptional features it presented :—

A married lady, aged thirty, nursed her eldest child through a somewhat sharper attack of measles than the ordinary. During the latter part of this time her second child, which had been isolated, sickened, and finally developed the same disease.

On the 5th November, the ninth day after the appearance of the rash on the first child, the mother felt very unwell with severe frontal headache, pain in the back and limbs, and great difficulty

* Read before the Section of Medicine of the Royal Academy of Medicine in Ireland, on March 13, 1903.

in swallowing from a sore throat. She told me that two days before while going about exposed to the draughts of the house, a rash had come out on her chest, but disappeared the same day, and that she had a severe attack of measles years ago, when she was at school. On examination her temperature was 102·5° F., her pulse rapid, her palate presented no Koplik's spots ; there was diffuse redness commencing at the anterior pillars of the fauces, extending over the entire soft palate ; both tonsils were swollen and ulcerated on the inside. There was constant vomiting, irrespective of any food taken, some dry cough, great restlessness, and complete loss of sleep. No photophobia or conjunctivitis present. She was at this time menstruating.

Her condition was practically the same until the 7th inst., when, on my morning visit, I found the rash of measles faintly marked at the angles of her mouth. Her temperature in the afternoon rose to 104°. The vomiting, restlessness, and insomnia were continued, uninfluenced by the treatment adopted, the kidneys and bowels acting normally.

The rash came out very slowly ; its colour, especially on the extremities, was that of mahogany. The face was livid, with considerable œdema of the areolar tissue, seeming twice its normal size. The conjunctivæ were intensely infected, giving the eyeball the appearance as if a hæmorrhage into the sub-conjunctival spaces had taken place. The rash did not extend to the lower extremities until the third day of its appearance. The prominent symptoms at the time were the high temperature, the insomnia, a hard cough which caused great distress, and the frequent vomiting, not even iced water being retained.

On the 9th inst. (the third day of the rash) I had the benefit of Sir Francis Cruise's opinion, who joined me in the further treatment of the patient. He at once pronounced the case as one of very severe measles.

The next day (fourth day of the rash) there was suppression of urine, none having been passed during the night, and the bladder was found empty on the passage of a catherer. A diuretic mixture of nitrate of potassium being administered, the renal function

was established during the day, and the temperature appeared to be falling.

The following morning the temperature at 8 a.m. had fallen to 100° ; but when Sir Francis Cruise and I saw the patient at 12 it had risen to 103°, and again suppression of urine was present. We dry-cupped over the loins ; the resulting discoloration of the skin was deep brown in colour. We continued the nitrate of potassium mixture with the infusion of addition of digitalis. As I did not like the symptoms I returned at 4 in the afternoon. I was told the kindeys had acted, and was shown about half a pint of smoky-looking urine in a vessel. Instead of finding her better, as I expected from the above, her temperature was now almost 106°, pulse galloping, and she was in a condition of stupor. Seeing there was no time to be lost, and fearing an uræmic convulsion at any moment, I rapidly, with the assistance of the nurses, wrung out a blanket which had been steeped in almost boiling water, took her clothing off, wrapped her up in the hot pack and placed several dry blankets around her. This done, I prepared a hypodermic injection of pilocarpin, but gave the pack twenty minutes, to see if it would act before administering it. Before that time had elapsed I was joined by Sir John Moore, who came in Sir Francis Cruise's absence. On examination we found the skin perspiring freely, and decided at present not to give the pilocarpin. She was put on 15 gr. doses of benzoate of sodium in hot water, and, strange to say, this rather nauseous dose was the first for many days which the stomach retained. Four hours later the temperature was 103°, the skin freely acting, so we removed the pack and wrapped her up in warm blankets.

Next day we again found there was suppression of urine, none having been passed since the previous afternoon ; this, however, gave way at noon, and was the last of this dangerous complication we were to see in our patient. The temperature at night still kept up, presenting a pyrexial condition, which I am sure many here besides myself have seen following even mild cases of measles. The pulse took somewhat longer than the temperature to return to 72, her normal rate; but finally, convalescence being established,

she grew rapidly well, and, except for some muscular weakness of her legs, presented no sign to indicate what a fight she made for her life.

This case I consider somewhat peculiar for the following :

1. The prevalence of scarlatina symptoms in the course of a case of measles, although the rash as it came out was undoubtedly measly, yet the inflamed throat, ulcerated tonsils, the continued vomiting, the kidney phenomena, and later on, the coarse desquamation would collectively make me doubt my own diagnosis were it not corroborated by physicians of such experience as Sir Francis Cruise and Sir John Moore. I may here mention parenthetically the same symptom of vomiting throughout the attack was also present in the cases of both children, in whom the other appearances left no doubt whatever of the nature of the disease. This symptom persistently occurring during an attack of measles I have never seen before, nor can I find any reference to it in the text-books.

2. The rash came out very slowly, and did not extend to the feet until the third day. Its character was petechial ; as I mentioned before its colour was deep brown.

3. The renal complication, which is most rare in measles. According to Professor Nothnagel's book only two cases are recorded by Henoch. The urine after the period of suppression was for a long time scanty, not exceeding 30 ozs. in the 24 hours ; was smoky, contained phosphates ; at a later date abundant urates ; but at no time could we find albumen. That which was voided immediately after the suppression contained 10 gr. solids to 1 oz.

4. The rapid cardiac action, without pulmonary complications, pointed to the toxic forms of measles alluded to by Allchin.

5. The spasmodic cough, resembling pertussis, which

followed the acute stage, and persisted during convalescence —a constant feature in my experience in the last epidemic.

6. The continual insomnia and restlessness, over which none of the drugs employed seemed to have the very slightest power. The following were tried, singly and combined :— Opium before the renal symptoms occurred, chloral-sulphonal the bromides.

7. The high range of temperature culminating in hyperpyrexia, terminating by protracted lysis. The latter is a condition found frequently associated with measles.

In the treatment two things appeared to do good—the internal administration of benzoate of sodium, which stimulated the renal function ; and probably the hot pack, which warded off uræmia and cardiac failure from the high temperature.

NOTES ON HALLUCINATIONS.

By Conolly Norman, F.R.C.P.I,

Richmond Asylum, Dublin.

When last I discussed the question of hallucinations before the Academy of Medicine, I detailed an interesting case in which hallucinations of many of the senses occurred, and the auditory hallucinations were confined to one ear, which was deaf.

A similar state of affairs exists in another case, which presents certain further points of interest. Briefly summarised, it is as follows :—

Case 1.—*Delusions of occult influence ; thought-reading ; utilisation of patient's faculties by others, etc. Hallucinations of various senses. Unilateral auditory hallucinations coinciding with unilateral deafness. Psycho-motor hallucinations involving the graphic centre.*

M. N—, male æt. 32, single, has been a soldier. Admitted (from a workhouse) February 13th, 1900. Family history could not be ascertained. On admission.—Patient gives this history of himself : He joined the Royal Field Artillery when twenty years of age. He remained in the service for over eight years, and served seven years in India. Had sunstroke three times. Since he came home he has had "an attack of malaria, with enlargement of the spleen." He has recently been a fortnight in prison "for being drunk and swearing in the streets." He was obliged to swear "on account of the annoyance in the ear." "They keep talking to me and asking questions. They can read every thought that is in my head. I believe that this system of telegraphy, the system of communicating with one another, is at work in the Transvaal. The Boers have this power, and are able

to read our despatches at a great distance." He cannot say who it is that can read his thoughts, save that it is a man and a woman. He gets most annoyance from the man. He thinks that these people are out of "the Female Hypnotic School."

Patient's appearance is healthy. His hepatic and splenic dullness are increased. His heart and lungs are healthy. (Had rheumatic fever four years ago.)

Patient is lame of right leg and has extensive scars about the knee. This is due, he says, to a gun-carriage falling on him some years ago.

February 20th, 1900.—Believes that he must have been hypnotised some time. "This fellow [he has no idea who he is] can always talk to me and hear what I am saying. He can always find me out. If I am reading a paper they can read it at the same time. It is said to be some system of wireless telegraphy, but I think it is a trick. I'm certain it is human voices," etc.

February 24th, 1900.—Overheard to-day using extremely abusive and threatening language, directed at some individual whom he would beat and kick, and so on, and whom he repeatedly called, "You blackmailing b——." He said he was tormented by this person, who knew everything he thought and spoke it aloud to annoy him.

February 28th, 1900.—"They annoy me as much as ever. I know they belong to some society. They want to know why I don't join the Freemasons; and what would be the use, because they could tell every thought in my head. When I'm talking to a stranger they tell out my character. It is always in the right ear."

Patient is reported as frequently answering these voices in an angry tone.

March 13th, 1900.—Patient talks in a very confident way about his annoyances. "I won't get rid of them, because some one has got hold of my head and they won't let it go." He hears these voices both by day and night when he is awake. "They are all kinds of voices; they can read every thought in my

head. Whatever I am reading is read by them in a whisper beside me."

April 13th, 1900.—Patient is sometimes very noisy, answering the voices he hears. He says there is a conspiracy against him to try and get some money out of him. "They tell me to go to the Freemasons' School, and they would get money for saying that I was selling secrets."

May 13th. 1900.—Continues to complain about these voices that he hears in his right ear. "Even playing draughts they can tell the moves on the board." "If I take up a paper they can read it with me." There are a man's and a woman's voices, and they annoy him day and night. He very frequently stops working to shout out curses at the owners of these voices.

June 13th, 1900.—When his eyes were being examined he remarked, "I used to do that myself in the glass, and I saw people in my eyes looking at me; they can see everything I am doing, and read the paper in my hand." "It is like ventriloquism." "It is by wireless telegraphy."

August 13th, 1900.—Says, "It's no use; I can't get rid of these voices at all. They are always questioning me, and telling me I am a bad character." "It is all this wireless telegraphy, and I have only to shut my eyes and shake my head and they can put some people in front of me, so that sometimes I can see two priests and sometimes other people. They are now deceiving me, and I don't know who they put in front of my eyes, as they change them so often." He produces a small piece of wood and says, "The centre of that there was a piece of glass taken from the eye of a sea-gull, and it has a map of the world on it," etc. On a later occasion he presented me with a piece of dark green glass, a fragment of a broken beer-bottle, I think, saying that by holding it in a particular light he could see figures ("of the blind") moving about in it, and that thereby he knew what was going to happen (? delusional interpretation of simple light effects). Pupils = both a little eccentric: react to light. K. J.'s much +.

November 14th, 1900.—Patient talks about "a lot of black-

mailers." "Mind readers, they could read the book in your hand." "I hear their voices in my ears the whole time threatening to expose my character."

February 13th, 1901.—Says he still hears voices ringing in his ears, accusing him of various deeds, *viz.*, murder, etc. He says that he is being made the medium through which a conversation is carried on between two persons. Says he can see the figures depicted in his brain and eyes. Says the voices are due to being hypnotised when he was young.

March 15th, 1901.—Says that when he reads the newspaper or books blind people read his thoughts; thus the blind, who themselves cannot read, are enabled to read through him and through his mind. When he shuts his eyes he can see these people—that is, their images—in his brain, and he knows they are able to read his thoughts because they speak what he thinks, and they repeat aloud the things which he is reading.

August 13th, 1901.—He has had voices speaking in his right ear. They kept calling him by name and accusing him of murder. He hears voices speaking to him from above, which are in communication with people outside the wall.

February 13th, 1902.—He is noisy and excited at times. He hears voices telling him that he murdered Samuel Childs. When he shuts his eyes he can see all these people in his head.

January 6th, 1903.—Being questioned as to the relations with the blind (see entry of March 15th, 1901), he gives the following account of himself:—"When I shut my eyes the blind move my hand—my right hand—as if I was holding a pen, and so they make me write their thoughts." He exemplifies this by closing his eyes and moving his right hand along the table with the fingers in the attitude of holding a pen, but he says they do not make him actually write with a pen—he would not do that for them,—and that he feels the movements of his fingers and hand wherever his hand may be; when his hand is in his pocket, for example—or if his hand is under his head,—only his eyes must be shut. "In this way the blind can communicate with each other through me." "I see the blind

in two ways—I see visions in my head and I see them spread over my body [this appears to mean superimposed upon him like an incubus], and I can also see them trying to photograph with a camera the objects in front of me. They cannot see unless what I see, but they try and photograph that." "Besides the blind, a man and a woman talk to me; sometimes, but not always, they talk indecently. Sometimes, being foreigners, they cannot understand the person who speaks silently to them from upstairs, and so they go on talking nonsense, thinking they are talking good English. This talk is mere abuse or nonsense, but not the gabble of idiots. I often hear, but cannot understand them." "They copy my thoughts and speak them over. If they move their tongue I feel it in my mouth." "The man that torments me has got hold of the dry plate of my photograph, and makes use of it to influence me and communicate with me." "The blind have a special sense more than we have—that is, their senses are more acute,—and so they know things that we cannot, and they call that thought-reading and wireless telegraphy, but it is not." "They give me pains in various parts; there is a knee-screwing machine and a hip-screwing machine." "They make me taste bodies that are in the ground; sometimes I have been made smell very bad smells, but I don't want to speak of that, for I think that was an accident. Some of the poor blind creatures were short taken, and made a mess." "I feel them touching my fingers, and sometimes they change the feelings of the whole of my body to somebody else's." To the above account of writing the thoughts of the blind, he adds: "I know it is not I who am writing, because I do not know what they are going to write; I only know it by the spelling of the words they make me write." With regard to the voices which he hears, he says that when they speak close to him low and confidentially they always speak only in the right ear, as if they were at his right shoulder; but sometimes they speak from far away, from some distance in front of him or above him, and then he does not notice that they speak more in one ear than in another. He seems perfectly deaf in the right ear, a fact of

which he is unconscious, and when the watch is placed to his right ear he says, "It is not going."

The well-known aurist, Dr. R. H. Woods, was so kind as to examine his hearing for me, and reported as follows:—

"I examined the patient whom you sent me and find that his deafness is of the middle ear catarrhal variety, associated with Eustachian obstruction. In the right ear he has lost his hearing for a watch; in the left his hearing distance is 4/36 of normal. In the right ear Rinne's test is —10, whereas it ought to be +25; in the left ear it is +5. The drums are slightly retracted, particularly the right. I was able, with a little persuasion, to pass a Eustachian catheter on the right side and verify the diagnosis of Eustachian obstruction. The right ear is the one in which he complains of 'voices,' and it is in the right ear one would expect trouble from tinnitus. Whether this complaint is his translation of auditory irritation that ordinary people would call noise or not, I am unable to say—probably you will be able to judge. As far as the objective condition of his ear is concerned, the case is a common-place one."

In this case we have, with very exquisite delusions of occult influence, hallucinations of various senses—visual, tactile, general sensibility, olfactory, and auditory. Of all these the last alone appears to be unilateral. The distinction that the patient makes between voices near and distant is interesting, as his hallucinatory state is quite analogous to the ordinary condition of a person who is deaf of one ear and does not distinguish the fact with regard to distant noises, but observes it when the noises are near.

I do not propose at present to add anything to what I said in an earlier paper on the question of unilateral hallucination nor on the subject of auditory hallucinations in the deaf, save to refer as regards the latter to an interesting case recorded by that very keen and able observer, Professor Pick, of Prague.

(I quote from an article by Séglas in a recent number of the *Annales Medico-Psychologiques* on "Unilateral Hallucinations.") Pick tells of a chronic patient who was deaf *of the left ear*, and who suffered from auditory hallucinations of the *right side*. A plug of wax was found blocking up the left ear; this was removed, and from that time *the hallucinations became bilateral*. This case seems to indicate that unilateral auditory hallucinations associated with unilateral deafness are not in all cases susceptible of the explanation which most readily offers itself—namely, that some peripheral or nerve-trunk-irritation occurring in the deaf ear is interpreted in a delusional manner.

It is to be noted that the mystic influences in this case have a close resemblance to the sufferings of the victims of witch-craft in olden times. The mystic glass is also interesting, and is, perhaps, a reversion to a common idea, or may be due to something that he has heard of the magic mirror of the East. Using him as a medium, obtaining influence over him by hypnotism, etc., recall the notions of both modern and ancient superstitions. Getting control over him by obtaining possession of the dry plate of his photograph, though quite contemporary in form, is, in essence, the old notion of witch-craft, according to which the witch had only power over a person by obtaining some portion of their body—hair, nails, or the like.

But the chief point of interest in this case arises in connection with the existence of psycho-motor hallucinations. "If they move their tongue I feel it in my mouth." In other words the patient receives ideas not in the way our hallucinated patients usually do, by the direct auditory centre, but through the speech centre. This is the commonest form of psycho-motor hallucination. Less common, and in this case more remarkable, is the psycho-motor hallucination connected with the graphic centre. Though his hand be perfectly

still he feels movements as if he were writing, and he recognises the words written by the movements which he feels himself making in forming the letters. It is curious to note that this only occurs when the eyes are closed. I am not yet prepared to say exactly why this should be, but it appears to exclude very perfectly the action of the visual centre. He does not see his fingers moving or the letters which they form. It appears to be entirely a matter of sensation of the trained movements used to express ideas by writing. Therefore, if we accept Tamburini's theory of hallucination, we must believe that we have here to deal with an irritation occurring in the graphic centre.

In the three cases which follow, the patients describe "voices" which they hear or feel in their mouth or throat or chest, but which, whether their own voices or the voices of others, do not come to their cognizance through their ears in the ordinary way of hearing. These appear to be pure cases of psycho-motor verbal hallucination, In Case 2 it will be observed that there are two voices, one of which the patient hears seemingly in the ordinary way, while the other is felt rather than heard, and is her own. In Case 3 voices are heard in the throat and chest. They are the voices of others speaking through the patient. In Case 4 telephones speak to the patient from her voice inside, and also she is compelled to repeat in her mind the blasphemous and indecent words she hears. There is a vague notion of double voice here, questioning and answering.

Case 2.—*Hypochondrical delusions. Occult influences, electricity, etc. Auditory hallucinations. Double voice. Psycho-motor hallucination relating to the action of the vocal organs.*

B. C—, female æt. 60, widow, shopkeeper; religion, Roman Catholic. No hereditary history of mental disease. Said to

have been healthy up to the oncome of the present illness. Being a dressmaker most of her life, she was of sedentary habits. Financial circumstances were so straitened as to give rise to anxiety. Patient's only son, in whom her daughter states "she centred all her affection," died three years ago. Some six months later her mother died after a long illness. Patient then became "melancholy and religious." Then she began to think everyone was looking at her in the street, and that certain people made her unconscious and took out her heart.

Admitted December 8th, 1902.—On admission thin, with rather haggard countenance. Expression somewhat anxious, vigilant rather than depressed. Loud first-sound murmur, most audible at the apex. Arteries tortuous and rigid. Urine free from albumen. She is a gentle-mannered person, somewhat timid and suspicious, but tractable. Converses with some intelligence on general subjects, and is capable of talking for some time without displaying delusion. When medical officer began to examine her chest, patient said she heard a friend's voice saying that such was not to be done. When she eats, her food goes up her back. People draw it up out of her stomach. There is "a split in her head." Hears two voices "in her head" answering one another. One is like her own voice.

December 9th, 1902.—Hears a voice abusing and using indecent language, and then she hears her own voice using pleasant language, such as "God bless you." A voice told her that it was through a slit in her head she hears, but she cannot feel any slit. When going into church one day she was struck across the chest with electricity; she does not know by whom. People in the street used to speak of her as she passed, and "voices" in church used to say to her, "Go to Communion, "Go to Father So-and-So," and the like.

December 15th, 1902.—Inclined to deny the voices at first; then describes them as before. The voice which replies to the abusive voice is her own voice. Besides the voices, she speaks of "brine," which is a sort of tingling pain that runs down to her feet and toes. Suffers also from what seems to be an

abdominal sensation which she calls "crickets"—(possibly delusional interpretation of the feelings produced by a dilated heart palpitating in the epigastrium).

December 22nd, 1902.—The abusive voice is often indecent, accusing her of being about to have children by a priest, and the like. Then a voice, apparently her own, replies. The tingling pain is better; it was electricity. She says she called it "brine" because it gave her the sensation of being pickled.

January 8th, 1903.—Has had fainting fits. Heart's action very irregular. Notes under these dates exhibit no change in mental phenomena, except that she grows less inclined to talk of her hallucinations.

February 8th, 1903.—Talks of the voices as "delusions," and says she is "cured." But says they *were* real. When at Communion she used to hear them say, "Your son is coming home," and the like. The "electricity" which she *used* to feel on her skin was a feeling of "softness"—a "creamy" feeling. She is restless and uneasy, always importuning to be sent home.

March 3rd, 1903.—Hears the voice of one of my colleagues constantly at night, telling her she will soon be going home Thus she heard him tell her last night that she would go away to-day, and she consequently expects to go. The voices are conveyed by "a fluid."

March 6th, 1903.—She talks spontaneously and by preference of nothing except of getting home, repeating this topic over and over again with a monotony resembling that of the melancholic. Questioned steadily, however, she admits that she still at times hears abuse and indecency; then hears her own voice saying prayers and blessing her, and telling her not to mind. "It is the voice of God, for it is always good, but it comes like my own voice, speaking so that I can hear it. *You* could not hear it, for I do not speak, but *I* hear it and feel it. The answer to the cursing comes to me in my own voice, and when I feel it I at once know that God is supporting me against the cursing." She added, returning to her favourite topic, "I don't hear

anything now except Dr. Cullinan telling me I shall go home."

CASE 3.—*Neurasthenia. Hypochondriacal delusions. Psycho-motor hallucinations relating to the action of the vocal organs.*

C. D—, female, æt. 36, single, artisan class. No hereditary taint ascertained. She is stated to have had "water on the brain" when she was ten years old. This affection was characterised by stupor and delirium. She was always afterwards "delicate and nervous," restless, and inclined to roam about in an aimless way. She was observed to have a peculiar habit of staring at her hands, probably associated with some hypochondriacal ideas. It is impossible to determine when the present attack began; it appears to be merely an exaggeration of her habitual condition. Medical certificate states that she thinks her body is dried up, and that she hears voices in her head.

Admitted August 29th, 1901.—On admission she was emaciated and pale, with fixed fretful expression. Though she looked very frail no definite signs of physical disease could be discovered, save an impairment of percussion over apex of right lung. She was fretful and somewhat resistive; resents examination. "It is the soul that is the matter, I am a case for a priest." Will not say that her soul is lost, but she has "saved it by prayer; it was at one time a beautiful soul." "I heard beautiful voices of saints in myself." Saw the Holy Ghost, but was asleep then. Her "body is drying up," and she has "lost her inside."

August 30th, 1901.—Complains (untruly) that she was blistered yesterday in a bath too hot and containing mustard. Vague hypochondriacal complaints. "Was a beautiful-bodied girl when I came here; had a beautiful body and beautiful limbs; now my heart is destroyed and every bit of me; my skin is changed." She heard beautiful voices of saints coming from her own throat. She was emphatic that she did not hear these voices in her ears, but in her throat (here she put her hand on

the epigastrium). She went on: "The voices were voices of saints and lady nuns, sometimes of countrywomen." They come specially when she is praying, but also at other times. They are as if it is she who speaks, but the voice is not hers. She recognises several voices quite different from her own.

September 5th, 1901.—Attributes her thin and fragile condition to the cleansing bath she received on admission. Says she was as beautiful as a statue till then; had a beautiful bust, etc. Used to sing like her friends, but she means "the saints" by "her friends."

September 12th, 1901.—"Body wasted; bowels closed; growing smaller and drying up," etc. By the gift of God she spoke with the voice of a nun whom she knew, etc.

September 19th, 1901.—Small causes, such as physical examination, visits of parents, etc., produce much agitation, during which she speaks more freely than at other times of her delusions. "Beautiful body is quite spent," etc. Hears voices which she describes as heard "in my throat and in my chest." She has rather improved in physical condition, and it is now noted that the lungs are clear.

September 28th, 1901.—Hears other people's voices speaking through her. If saying her prayers hears another person's voice saying them for her.

October 14th, 1901.—"I used to imagine that I spoke like saints and nuns. I used to hear their voices in my throat and chest."

October 29th, 1901.—She hears a lady's voice in her chest, sometimes when she herself is speaking, sometimes when she is not speaking. Generally dull and very inaccurate about dates.

Notes made in November and December, 1901, show indications of catarrhal trouble in the lungs. Under treatment by cod-liver oil, etc., this cleared off, and in January, 1902, she had begun to gain flesh. During this time she remained dull and hypochondriacal, and sometimes spoke of her voices as "imaginary," "perhaps fancy," and so on, and sometimes as being quite real. Hears them in the chest and throat.

May 29th, 1902.—It is noted that she does not know where she is living. The old hypochondriacal notions continue. She employs herself in the workroom, sewing, etc. Usually speaks of her hallucinations as of things past.

August 29th, 1902.—"Used to hear voices," but does not now. Tells of them as real, but if pressed will say, "They may be imaginary." Dull and self-absorbed. Is almost always praying, but employs herself at needlework.

March 6th, 1903.—Though rather self-absorbed, speaks freely when questioned about her "voices." "They are the voices of saints and holy people. They come in my throat, not in my ears; it is like as if I was speaking, but I am not speaking, and the voices are not mine."

CASE 4.—*Persecutory delusions. Impulse to suicide. Auditory hallucinations. Psycho-motor hallucinations relating to the action of the vocal organs.*

D. E—, female, æt. 36. married, servant class. No satisfactory family history obtainable. Her first child was born about four months before admission (natural labour so far as is known), and since then she has been ill. Is said to have suffered from hallucinations, visual and auditory, and to have attempted about six weeks before to drown herself and her infant.

On admission, March 27th, 1902.—Fairly nourished, pale, pupils wide and sluggish. She has a fixed and somewhat anxious expression, suggestive of listening. Says that she was told by telephone that her husband is not her husband, but her brother. She says things pass from the ceiling to the floor, but this was electricity. Did not try to drown herself and her child, but only thought of it.

March 28th, 1902.—Little sleep, "owing to my mind; I had suicide and everything in my head." Also heard a "clicking" in her ears. Often hears a voice like the telephone "humbugging me with a lot of questions."

April 2nd, 1902.—Preoccupied, restless, quarrelsome. Sounds

at night like someone speaking through a telephone, saying indifferent things with some application to patient.

April, 10th, 1902.—Hears the telephones constantly—not in her ears, but in her throat or mouth. The language is mostly abusive and vile. While my assistant, Dr. Cullinan, was questioning her she paused to listen to such voices, and repeated to him what they said. Afterwards she said to me, "The telephones speak to me from my voice inside" (laying her hand on her chest). "It is like my own voice; it is some one speaking with my voice. I hear it in my mouth." While I spoke to her she assumed a listening attitude, and her lips moved a little. Questioned, she said she had then heard the voice; it said, "Why don't you marry the man that took the teeth out of your head?" I remarked to her that her lips had moved, and asked her whether she had not been merely talking to herself. She said, "No, some one moved my lips."

April 27th, 1902.—"There are some questions answering to me." "Cursing and bad language." They are tormenting and putting questions into her head. She gives it to be understood that indecent and blasphemous words are suggested to her, and that she is compelled to repeat them in her mind.

May 27th, 1902.—The telephone continues to talk to her but she has "put down" the bad talk. No more dirty words and curses. Indifferent references to her past life and surroundings.

June 27th, 1902.—Complains that she is pulled by the head at night to make her shaky, etc.

July 27th, 1902.—Quite astray as to dates; dull and sluggish; volunteers little information. A voice tells her her mother is here.

September 27th, 1902.—Does not yet know the names of the medical and other officers of the asylum. While an A.M.O. was examining her to-day, patient quite irrelevantly said, "Bloody hell." Asked why she said this, replied that someone answered her back.

December 27th, 1902.—Tranquil and works a little, but does not gain intelligence. Does not know where she is, nor the names of those around. Says she does not hear voices now, but used to hear a voice calling—a far-away voice.

March 6th, 1903.—"The telephones speak in my mouth. I do not hear them in my ear, but they talk with my voice in my mouth."

In none of the following cases are the descriptions given by the patients quite so exact as is the above, yet in all a condition exists which I think is identical with the former cases.

CASE 5.—*System of persecution. Neologisms. Mystic influence. Mental action interfered with. Impulses to suicide and murder. Psycho-motor verbal hallucinations.*

Male, æt. 27, single, a post-office employé. Father was a patient in the Richmond Asylum, Dublin, where the present patient was admitted July 26th, 1902. He then presented a highly-organised system of delusion. Was the victim of persecutors, who were an American gang of "sporers," "spookers," or "worsters." They play upon him by means of an "ether connection." They reproduce scenes on the brain like a cinematograph.

On August 2nd, 1902, he is tormented by electrical instruments called "tykes" and "spankers," the action of which is similar to that of "the corps of wireless telegraphy."

August 26th, 1902.—His sleep is disturbed; does not get proper sleep; it is like a stupor or torpor. This comes from the "spooking business." During the two following months the notes indicate hallucinations of hearing and vision.

November 26th, 1902.—"I am an automatic lunatic; I can sing, dance, or do anything through the wires that are acting on me." "They can address me by the mouth; they can make me speak by forcing the tongue."

January 5th, 1903.—He tells of an attempt at suicide (truly) made some time before his admission: "I felt strange, as if

some person had made me subservient to his will-power and urged me to do things I did not want to do; this, I believe, is known as mental telepathy. I was tormented by means of a voice, the owner of which can remain at a distance and hold up his victim to contempt. One day I was much tormented, and an impulse which I could not resist came upon me, when I was in my brother's workshop, to lift up his shoemaker's knife and draw it across my throat. The cut was slight, but I and my mother and brothers and sisters were all terribly frightened. More than once terrifying impulses seized me to take a hammer and knock out my brother's brains. Once I took the hammer up, but I dropped it and ran away. Afterwards my relatives were in collusion with my phantom persecutors. I suspect also a man called R—; he is a master of wireless telegraphy. Thus while a race is being run at Aintree he reproduces it by wireless telegraphy in a theatre in Liverpool. It is a system of personation. They frustrate my intellect; they worry and confuse the mind; they rush the intellect. They are called 'shrivers.' They can reproduce the incidents of your life as clearly in your sleep as if you were awake. They work on the mind and make one a mere automaton. From creeping melancholy to the distorted maniac they can reproduce every form of lunacy. They use my mouth to articulate their words. They make me say words I don't want to say—smutty words, for instance,—and they make me sing silly popular songs."

January 26th, 1903.—Said to my colleague, Dr. O'Reilly, "They can talk to you through my mouth." Asked to demonstrate this, he shouted, "Will you give over?" (cease), and answered loudly to himself, "No." Said he could not prevent the answer, that he was compelled to give; it was not he who spoke, but his phantom persecutors through his mouth. He is an industrious person, and intelligent in various handicrafts, painting, etc., Good-humoured when addressed. When alone he is liable to loudly and angrily revile his persecutors, but he has never been heard indulging in the automatic talking and singing of which he complains.

Case 6 is a case which can only be abstracted here, as it is too voluminous to be detailed. A married man, now aged about 60, formerly a butler and of intemperate habits, has been under my observation four and a half years. He suffers from paranoia persecutoria, with well-marked hallucinations of perhaps every sense save that of mental action. His thoughts are not compelled, but he is tormented in every other way. Hallucinations of general sensibility, dolorific, and of the muscular sense; true tactile hallucinations; thermal: hygric (hallucinatory sensations of moisture); visceral; genital; olfactory; true gustatory; visual (elementary and common); respiratory; auditory (elementary, common, and verbal). In May, 1899, he spoke of a voice that was sometimes puffed into his mouth by the same agency that puffs smells into him, and that acts upon his breath, but he hears it in his ears. He was satisfied that it was not his own voice, because "it goes into me, whereas my own voice comes out of me." In April, 1900, he said, "By day I hear the voices through my ears the way I hear you speak; by night they are mostly working on the breath, going in and out of the mouth."

We seem to have here a not very fully developed condition of psycho-motor verbal hallucination. The case is interesting as showing very extenisve engagement of sensation. The somewhat rare hygric hallucinations are well marked (sensations of being wetted, drenched with water, etc.). This form of hallucination was first described by Baillarger. Ramadier, in describing some cases, attributed it to a special form of sensibility (sense of moisture). Tambroni is disposed to think that what he has entitled the hygric sensibility may even be localised in the convolution of the hippocampus. Ravenna and Montagnini, in a careful study of the subject (*Riv. di Pat nerv. e ment.*, Sept., 1902), give a guarded support to Tambroni's view. We also note in this case the occurrence of respiratory hallucinations, by which name I propose to designate those sensations of suffocation, interference with

the breathing, etc., which are so common. It would probably be correct to consider these also as psycho-motor hallucinations. Perhaps the same may be said of the minor conditions of hallucination of the muscular sense, in which a patient complains, as occurs in this particular case, of sensations of lassitude in special muscular groups, feeling as if his limbs were too heavy to move, etc. It is so certainly, as Séglas has pointed out, with regard to hallucinations as to movements of the limbs ; and that author has dealt, in the same connection, with the very interesting hallucinations which occur in persons who have lost a limb by amputation and are able not merely to feel pains in the extremity which has been removed, but also to experience sensations as though lost members were being flexed, extended, supinated, pronated, etc.

Séglas has suggested, no doubt justly, that hallucinations of the muscular sense may have brought about beliefs in transportations by witches, rides on broom-handles, etc. A case occurred in my clinic last year in which an elderly male drunkard suffered from hallucinations of vision (blue lights flashed upon him) and a sense of being transported through space at night. He felt himself lifted up, bed and all, and carried to and fro through the air, and then brought back again. With these hallucinations, delusions that " electrical parties " were working against him. Made apparently good recovery in about three months.

In another recent case a woman, æt. 36, who had been drinking, suffered from dysnoia, confusion, loss of orientation, transient delusions, now exalted, now depressive, auditory visual and visceral hallucinations, and entertained beliefs that her voice was changed, and that she was carried from place to place. The last was for a time her most prominent complaint. Thought the transport was effected by an electrical machine. She recovered in about six weeks' time.

In another case, which I saw through the kindness of my friend Dr. Molony, who was then Physician to Swift's Asylum a lady was subjected to a very terrible form of torture. As soon as she fell asleep she was removed to the Zoological Gardens and handed over to the various animals, who outraged her all night. This was said to have occurred in sleep. It was evident from the distress and terror which she exhibited that the sensations experienced were very real, and the sensation of being transported was as distinct as the specific sexual sensations. Subsequently, as I learnt from Dr. Molony, this poor lady, after an illness of twelve years' duration, made a good recovery.

Returning to Case 6, we have here to note another feature —namely, an interesting form of association of hallucinations. "My mind is tortured by a voice, and at the same time my body is tortured with the practice upon it of pains and darts; the practice does not come without the torturing voices, nor the voices without the torturing practice."

Case 7. - A married man, æt. 38, engineer, of intemperate habits, and having a bad family history, exhibited at first what appears to have resembled ordinary dysonia, then developed delusions of jealousy, and then, forgetting these, a system of persecution. Has been under treatment for four years, and while he retains to the full his ideas of persecution he has gradually arrived by the way of martyrdom at the belief that he is the chief teacher of Jesus Christ and the Paraclete, and that all the world is 'in simile" with him, and so on. He has been tortured by electricity, and, as he himself says, all his senses are tampered with. He has, by the way, true gustatory hallucinations (sweet and acid tastes) confined to the back of the tongue.

May, 1899.—His "thoughts are anticipated and his mind known before he speaks at all;" his "eyes are made looking-glasses for others;" further says, "I am employed as a telephone. It is something within me that is connected." Talks of "a communication like a voice—something speaking

to me in my mouth and throat. The word comes from my throat; it is not formed in my brain; it is formed by some superior power, either your will-power or electricity."

August, 1899.—"All my thoughts are spoken by my tongue-soul to every person in the world. My soul is in touch with all the souls in the world—even silent thought." He also talks in a not very intelligible way of his "picture thoughts."

Case 8.—*Delusions of persecution with tendency towards ambition. Hallucinations of general sensibility—visceral, olfactory, genital, visual, auditory, double voice, not very prominent psycho-motor verbal hallucinations. Mystic influence. Tendency to neologism, etc.*

E. F—, female, æt. 53, widow, tailoress, Roman Catholic. An aunt is stated to have been insane, and patient says that a sister was epileptic. Patient married many years ago a man much older than herself. The marriage was childless. Husband died five years later. After a few years she had an illegitimate child, who died at birth. Since that event she lived a virtuous and industrious life (now for many years). She is said to have been temperate. Her present illness is said to have been of one and a half years' duration.

Admitted May 23rd, 1894.—She then presented numerous hallucinations and delusions. She was the subject of mysterious attacks and persecutions, which had caused her to frequently change her lodgings and go from place to place (*persecutée déménageuse* of Ball). "Voices" at night. "Darts" of pain, more or less everywhere, but particularly about the genitalia. Sensations of tightening, of dilatation of the vagina, and specific sexual sensations. "Visions," sometimes of the machine over the ceiling, that works all this mischief, sometimes of abominable and impure objects. As is so often the case, she says, "I do not see these things; I am made to have a vision of them." Snuff and soot are put in tea; the food that is given is rotten. Frightful smells, apparently fæcal, disturb her. Dust is blown into her room and nearly stifled her. Her abdominal viscera are

dragged down and are tightened. Incontinence of urine is occasionally produced. She was forced to laugh and forced to cry, and forced to do things. When she tried to read, some one would read with her. People assumed her form for improper purposes. They talked evil of her through the city, and made her friends to shun her. They put things against her character into the public Press. The voices were described as having a peculiar character. They were "drumming" voices. A "drumming" voice is produced by speaking with the lips closed and the teeth open. The person drummed to can hear the voice, and others cannot. The voices thus heard were some friendly, some hostile, and maintained an attack and defence, some vilifying patient, others saying it was a shame to torment so excellent a woman in that horrible way. Further notes of this case are very long and detailed, and it will be impossible to more than indicate the most interesting points. In February, 1895, she stated that she was born for a high position, to which she has never attained, and that she knew she was humbled (by her torments) in order finally to be exalted to her proper sphere. This seems to be an example of the not uncommon building up in a pseudo-logical way of exalted delusion on a foundation of persecutory notions. The case, however, is not one of Magnan's *delire chronique*, for the persecutory notions still subsist, while the ambitious ideas have not increased, and are rarely referred to. She continues much in the same condition for the past eight years. Sometimes one particular phase of persecution is more complained of than another, but there is no real change. Asked (May, 1899) whether she heard voices anywhere except in her ears, she laughed and replied, "How can one hear but with one's ears?" and immediately added, without further suggestion, "But they use my throat as a telephone to speak their own voices through." One has been careful since then to avoid suggestion of any kind, but she occasionally refers, among her other complaints, to the telephone voice inside.

Case 9.—*Paranoia persecutoria. Mystic influence. Neo-*

logism. Hallucination of the sense of mental action. Compulsory whispering of thoughts. Subjective sense of compulsory talk (coprolalia, etc.).

A. B—, female, æt. 23, single, of farming class ; religion, Roman Catholic. No hereditary history of insanity. Patient had convulsions when about two years old ; otherwise she is said to have been healthy and normal up to March, 1902. At that time she is said to have begun complaining that people talked to her through the walls. Her brother observes that "she became very crafty and deceptive" (*i.e.*, suspicious). Admitted October 30th, 1902.

On admission, a well-developed and well-nourished young woman, presenting no physical peculiarity save that she is somewhat pallid. Self-satisfied, precise in manner, and very disputatious. Though good-humoured enough, she does not readily reply to questions, as she prefers to interrogate her questioner, demanding to know what she suffers from, how her mind is affected, and so forth. Says she has slept little of late, being annoyed by "voices" coming through the walls from the next house. She was also annoyed by the bishop and clergy ; they sat and willed that she should come to Confession ; this did not influence her, but it annoyed her.

October 31st, 1902.—Says "the actions and attitudes" of the young men in the next house used to annoy her. They had a sort of "pantomime" which she cannot more particularly describe ; each had a "*rôle* ;" they "syllable-ised" their words, and made a smacking of the lips. Her own family were cognizant of this annoyance, as she heard a laugh from the next house which she recognised as being her sister's laugh. Also heard a voice from the next house threatening death to her soul if she did not stand up for it, etc. Could not remain in the church after the priest had come in, because she had no control over her talk, and everything that was said or whispered she was obliged to repeat ; a weight came over her chest, and she had to repeat all she heard. Thinks the priests have some hand in this.

November 6th, 1902.—"No control over my talk. Have to

repeat what I hear other people say. This is distressing, for they often say bad things. There is ecclesiastical influence in it."

November 13th, 1902.—"Better. The 'reserve' part of the talking is better. Have more control." Still she says she has to repeat the indecent things that were said to her through the wall at home.

November 15th, 1902.—"The other patients repeat at night everything I say during the night."

December 15th, 1902.—To the writer she said, "I am weakened by influence. It must be ecclesiastical influence. In some respects my thoughts are hindered. The free use of my thought is hindered. I am compelled to speak in a childish language, and my speech" (contents of) "is influenced; besides, I have no guard on my talk. I do not know what does it It is mysterious; there is 'that other matter.'" (Refuses to explain this last phrase; it seems to mean something besides priestly influence and the influence of young men.) "They speak, and then I *have* to repeat, and sometimes to reply." Speaks somewhat vaguely of a gramophone.

December 30th, 1902.—"The train of my thoughts is destroyed. I can't think without whispering the words." Still hears the voices of people at her home. As her home is fifty miles away she accounts for this by means of the gramophone.

January 30th, 1903.—"I was under priestly penance; they wanted to get my mind weakened, but could not get a thorough hold on it. They got students to talk some kind of pantomime; sometimes I hear it now, but it may be the patients here."

February 28th, 1903—The ideas are becoming more grotesque. Says she is "worked on by theology and medicine," and "suffered from penance in a sense intermixed with medicine." Her muscles have been deformed since she came here. Her limbs require no renovation, and they have been utterly deformed. Her body is lying in state, and any deformities practised upon it (apparently by the medical staff) are entirely illegal.

Throughout she has remained tidy and smart, rather pert and saucy, extremely suspicious, able to work at needlework, etc., though apt to be lazy and self-absorbed if left to herself. She never indulges in objectionable language. Sometimes she has been heard talking to herself, but the contents of her conversation cannot be known, as she at once becomes silent when she is observed.

In many cases, as Séglas has pointed out, the accounts which the patients give of themselves are so incoherent and unintelligent that the mode of hallucination is rather obscure, and yet we have strong grounds for thinking that it is truly psycho-motor. That seems exemplified by the following cases :

Case 10.—A male, labourer, æt. 39, married, father of eight children. Used to drink hard; said to be sober for some years. Some two years ill when admitted on February 13th, 1901. At first, voices, at curiously varying distances, repeating to him everything that was in his mind and making a toy (*i.e.*, puppet) of him. Later on he complained of inward dread, caused by the voices assuring him that the whole place was about to be destroyed. Then he announced that he is filled with the Spirit of God and is the greatest prophet since Jesus Christ; has foretold various historic events, etc. Again, the exalted ideas recede and he is persecuted—"I suffer pains for others; I have none of my own." Hears voices of girls, who use dirty language; has a heavy pressure on his body; is "tormented by a system of suckage." In July, 1902, he said to me, "It is caused by 'cheefening changes;' my mind is full of visions; voices roll up from my stomach and nearly choke me; I pronounce with my tongue, but they come so quickly I can scarcely articulate them and have not time to understand them as they come out; they roll like balls out of me."

Case 11.—Male, single, æt. 35. He is called a labourer, but he has been some ten times in jail, as well as twice in asylums, and may be probably classed as an habitual criminal. For the

last eight years he has, he says, been tormented with voices. He was admitted to the asylum from prison in July, 1900, and apparently prison discipline and abstinence, following upon extreme alcoholic excess, caused the aggravation of an habitual state. His symptoms briefly were, on admission, voices, flashes of light, blows on the head, bangs on the heart. He complained also that the minds of others went out of them and were communicated to him. There was an instrument over his head to which he attributed the execution of all these annoyances.

In January, 1901, things had got rather worse. His head was twisted at night by electricity. Sometimes he saw his persecutors in the air "like a picture, but when I look again they are gone." At that time he stuffed his nose at night to procure sleep, for "the electric affair comes down through my nostrils."

A year later he gave a fuller explanation in these words :— "There used to be a very strange thing coming down through my nostrils ; it was like a false breathing ; it was turned into a voice, and I was supposed to take a meaning out of it ; sometimes it was calling names—'blackguard,' 'son of a w——,' and the like ; sometimes prayers ; sometimes (according to the humour of the place where you would be sleeping, or according to your own humour) the words would be friendly and call one good names ; but most of it was double-meaning things ; you could take no sense out of it."

Case .12—Male, æt. 36, single, fireman on an Atlantic liner. He has lost the sight of one eye through an old accident, but this fact has no apparent bearing on his symptoms. His hallucinations are not unilateral. He came to consult me in the year 1901, having been at one time in an English county asylum, from which he was discharged unrecovered. He recognised his own mental unsoundness, but attributed it to the machinations of persecutors. He said, "They started those pocket reflecting kodacs with me three years ago, and illuminated my whole system and brain and intellect. They upset my head by this. They drew my mind and imagination ; they took my mind out on the breath. It was my own mind which they kept repeating

as they drew it out. When I was at sea in the stoke-hole they spoke to me through my nostrils; in this way they spoke through me to another man. They passed all kinds of smells upon me. They prodded me in the limbs and in the guts and in the penis. They produced sensations of lust" (and sexual orgasm). "I have seen the blue flash of light when they were illuminating my head."

Case 13.—An old male sufferer from chronic paranoia, probably of many years' duration. Has been under treatment for four years, Generally noisy, violent, and rather incoherent, with episodes of depression and self-blame. Voices accusing him of all sorts of crimes. His chief complaint at all times is that his tongue is always wagging. "My tongue is cursing me every day, and I can't stop it; is there nothing will control a man's tongue? I have my senses and can't hold it; in spite of me it is always wagging and cursing." He is apt to denounce all doctors as rogues because they cannot keep his tongue from wagging.

Séglas, to whom we owe the phrase psycho-motor verbal hallucinations, and to whom we are also indebted for the most complete description of the syndrome, associates the "inner voice," the communication from spirit to spirit, and the like, with this condition. I have not detailed above any cases of this condition in which the connection between the mental impression received and the motions of the vocal organs was not pretty distinctly experienced by the patient. Even thus limited, these cases present several features of interest. Their resemblance to each other is striking. The frequency with which the formation of neologisms coincides with this class of hallucination is probably not accidental, nor is the existence of the double voice, nor is the almost invariable notion that the patient is a machine used by external agencies to communicate with others. The great prevalence of these hallucinations, though they have attracted little attention from English writers, must be apparent. Lugaro is within the

mark when he says, in a recent article, that they can be counted by tens in every large asylum. In fact, I believe, if they are searched for, they will be found to be among the commoner symptoms of paranoia hallucinatoria. The study of the phenomena of psycho-motor hallucination confirms the now generally received doctrine of Tamburini as to the origin of hallucinations, and is not inconsistent with the adoption of Tanzi's view, which may probably be justly considered an amplification and development of the opinions of the former author. But to this topic I shall return on a future occasion. Meanwhile I must express my obligations to my colleagues past and present, Dr. D. F. Rambaut, Capt. Sheehan, Drs. Cullinan, Fleury, Redington, and others, to whom I am indebted for many valuable notes among those from which the above cases have been abbreviated.

TWO CASES OF LYMPHATISM.

By George Peacocke, M.D., F.R.C.P.I.;

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In the year 1901, I brought under the notice of this section of the Academy, a series of five cases of sudden death in young children. The *post-mortem* in each case showed a condition of hyperplasia of the lymphoid structures, especially the thymus gland, agminated and solitary follicles of the small intestines and the mesenteric glands. Two other cases have recently come under my notice, and I thought it would be of interest to give a very brief account of them.

Case 1.—On Sunday morning, the 22nd February, a child aged 7 months was brought to the Adelaide Hospital by his mother. She stated that a few minutes previously he was eating a crust of bread when he got what she described as a "choking fit." She immediately carried him over to the hospital, but on arrival life was found to be extinct. He had previously been an apparently healthy child, was well nourished, and had all the appearance of being well cared for.

The same afternoon I made a *post-mortem* examination. The brain was healthy. There was no evidence of any laryngeal obstruction. The heart and lungs were normal. The thymus, which almost completely covered the heart, measured in its greatest length, 102 mm., and in its greatest breadth 63 mm. Its volume was 37 cubic centimetres. The spleen was not enlarged but on section the malpighian corpuscles stood out as prominent white elevations. The mesenteric glands were universally enlarged and hard.

The agminated and solitary follicles of the small intestines were distinctly hypertrophied, especially the former, giving the appearance usually found in the early stage of enteric fever. No other glands were enlarged and all the remaining organs seemed healthy.

Case 2.—The second case was that of a boy aged one year and ten months, who was brought to the hospital on the morning of April 4th. His mother stated that he had had a slight cold for the past few days, but was otherwise a strong healthy boy. She was leaving the house where she lived in Peter's Row to make some purchases when she was called back and found the child "looked queer." She carried him over to the hospital without delay, but on arrival there he was dead.

The same afternoon I made a *post-mortem*. The child seemed well nourished. There was slight evidence of rickets, consisting of some enlargement of the wrists and curving of the lower ends of the tibiæ. The thymus was enlarged measuring in its greatest length 100 mm., and in its greatest breadth 70 mm. Its volume was 35 cubic centimetres. The spleen showed the same appearances as in the previous case.

The mesenteric glands were enlarged but there was no evidence of enlargement of any other lymphatic glands. Peyer's patches and the solitary follicles in the small intestines were also swollen. The hypertrophy of the latter being more marked than in the previous case. The other organs were healthy.

In Vierodt's Anatomical Tables, quoting from Friedleben, the dimensions of the normal thymus are given :—

Its greatest length from

Birth to 9 months,	..	59 mm.
9 months to 2 years,	..	69 mm.
3 years to 14 years,	..	84 mm.

Its breadth from 27 to 41 mm., and according to Krause the length varies from 54 to 83 mm. The volume varies between 4-23 cubic centimetres.

In the cases I have described the thymus was therefore nearly double its normal size.

In the Report of St. Bartholomew's Hospital for 1902, Dr. Thursfield describes four cases of "sudden death in infants associated with enlargement of the thymus gland," and thus summarises the points in common in the four cases :

"The sudden death, the absence of any lesion sufficient to account for death, the presence of bulky and heavy thymus glands, and the evidence of hypertrophy of the lymphatic tissue shown in the enlargement of the Peyer's patches and the solitary follicles, and in two cases of the lymphatic glands."

Dr. Laqueur in *La Tribune Medicale* narrates the case of a boy who after inhaling about 30 drops of chloroform suddenly died. Chemical examination showed the chloroform was pure. Necropsy showed hypertrophy of the thymus and of follicles at the base of the tongue and enlarged spleen.

Kemdrat has collected twelve similar cases, in all of which there was evidence of hypertrophy of lymphoid structures.

The cause of death in these cases seems quite obscure. There is no evidence to prove that it is due either to direct pressure on the trachea or to pressure on the vagi in the neck by an enlarged thymus, as has been suggested. Pathological investigation has failed to corroborate the statements that it is due to coagulation of the blood, the result of thymus secretion, or that its cause can be attributed to the presence of certain toxins in the circulation.

The association of hypertrophied lymphoid structures and sudden death in young children is now an established fact, but further investigation is needed to discover the relation that exists between them.

STRABISMUS CONVERGENS AND ITS TREATMENT.

By J. B. Story, M.Ch., F.R.C.S. ;

Surgeon Oculist to His Excellency the Lord Lieutenant ; Professor of Ophthalmology to the Royal College of Surgeons. &c.

Our first real knowledge of the cause or causes of this affection we owe to Donders, whose book on the " Accommodation and Refraction of the Eye" appeared in an English translation (by our late fellow townsman, Dr. Moore) in 1864. Donders laid down that hypermetropia is the cause of converging strabismus, and its action is aided by the following conditions :— (1) Circumstances diminishing the value of binocular vision, such as defective sight in one eye from any cause ; and (2) circumstances rendering convergence easier, such as peculiar structure or innervation of the muscles, or an abnormally large angle alpha. In the higher degrees of hypermetropia strabismus is not so frequent as in the lower degrees, because difficulty of obtaining an accurately focussed image in either eye enhances the value of the probably more imperfect image obtained by binocular fixation.

This theory of Donders, after some forty years, still holds the field, expressed nowadays, of course, in terms somewhat different from those used by Donders, but essentially the same theory.

For instance, Hansen Grut, who made strabismus the subject of his Bowman Lecture to the Ophthalmological Society in 1890, regards strabismus convergens as due to an abnormal innervation of the internal recti. (Strabismus divergens, on the contrary, he regards as due to a relaxation

of convergence innervation permitting the eye to assume its position of rest.)

Hansen Grut lays great stress upon HABIT, which he considers an unconscious innervation, which in time produces a new functional position of rest.

In investigating the subject of strabismus in general, he starts from the anatomical position of rest. This, he states, is divergent ; for

(1) In regarding distant objects, if one eye be occluded it much more frequently diverges than converges, though it remains more frequently parallel than either divergent or convergent.

(2) Divergence is more common in deep sleep and profound narcosis than any other position.

(3) After death and before rigor mortis divergence is the rule.

(4) The orbital cavities diverge.

(5) A blind eye as a rule diverges.

He regards therefore much of the parallelism found in testing as the expression of a functional and not of an anatomical position of rest, a portion of the convergence, namely, from the divergent anatomical position of rest to parallelism, being latent, just as some hypermetropia is commonly also latent.

In convergent strabismus then the HABIT of convergence leads to the withdrawal of a large portion of the amplitude of convergence from the voluntary control of the individual, or in other words the constant habit of convergence displaces the functional position of rest more and more inwards.

As proof that strabismus convergens is an innervation Grut adduces the occasional disappearance of it under chloroform, and the constant parallelism or divergence observed under chloroform the moment the internal rectus is divided, while convergence returns on recovery of consciousness. No

such phenomenon is observed in operating on external strabismus. He also states that after tenotomy of the internal rectus when some convergence still is left the secondary angle of squint becomes greater than the primary, the latter now lessened by the operation. This can only be accounted for by assuming that the strabismus is an innervation.

Other views than these are held by some ophthalmologists. According to Schweigger, the essential cause of squint is not to be found in anomalies of refraction, but in an elastic shortening of the muscles with insufficiency of their antagonists.

Alfred Graefe also believes there is a state of passive anatomical shortening of the muscle, but he thinks this is consecutive to the squint. All these theories which assume a shortening of the muscle from any anatomical condition are objected to by Hansen Grut, for the following reasons :—

(1) The assumed anatomical shortening has never been demonstrated.

(2) It is not in accordance with the fundamental laws of squinting, inasmuch as the limitation of the movement of the squinting eye in the direction opposite to that of the squint is always considerably less than the angle of the squint.

(3) It is not in accordance with the temporary cessation of squint in narcosis, &c.

(4) The spontaneous disappearance of squint renders it improbable.

Schneller again finds the essential cause of squint in an abnormal relation between the adductors and abductors. To this Grut replies the abnormality is the result and not the cause of the squint.

In his Bowman Lecture on the " Etiology and Educative Treatment of Convergent Strabismus " Priestley Smith takes up the same position as Hansen Grut. His conclusions are :—

(1) That strabismus convergens is a disease of innerva-

tion, the visual centres failing to control the act of convergence, which consequently becomes degraded or purposeless, the act is excessive because uncontrolled.

(2) Failure of control depends on faulty development of visual apparatus, peripheral or central.

(3) Hypermetropia predisposes.

(4) The disorder is confirmed by suppression of retinal impressions in squinting eye.

The one essential cause of squint then is a defective development of the fusion faculty, and without the fusion faculty binocular vision is impossible.

The faculty of binocular vision may exist without being perfect. There are found, according to Worth, three different grades of the faculty existent: (1) Simultaneous macular perception. (2) True fusion with some amplitude. (3) The sense of perspective. It is generally allowed that the power of fusion is not congenital, but is a function acquired after birth by experience. The ocular movements of the new-born infant cannot be described as anything else than purposeless, and even the power of macular perception is probably imperfectly developed at birth.

It is only by use (the habit of Hansen Grut) that the child develops the functions of its retina, and its central visual apparatus, with the various centres connected with the eyes both sensory and motor. At birth the visual apparatus, both peripheral and central, is even anatomically an imperfect structure. Very probably of the various ocular functions that of fusion is the last to be fully developed. According to Worth its full development is reached normally before the end of the sixth year of life.

Before adopting treatment of any kind, the following points should be accurately noted :—

(1) The kind of strabismus.

(2) Unilateral or alternating.

(3) Continuous or periodic, and if continuous, whether constant in amount or varying.

(4) Duration and mode of onset.

(5) Physical condition of each eye.

(6) Functional condition of each eye, viz., vision, field of vision, refraction, fixation power of crooked eye, binocular vision ; *i.e.*, if diplopia exists, or is to be elicited by prisms, coloured glasses, or fusion tubes, &c., determine the suppression area.

(7) Degree of strabismus, by which I mean the angular measurement of the deviation, for no approximation to accuracy can be made by linear measurement. There are several methods of measuring the angle of squint, subjectively by observation of double images when this is possible, or objectively by the arc of the perimeter, or by Wecker and Masselon's "keratoscope," or by the simple tape measure proposed by Priestley Smith. The latter method can only apply when the primary and secondary angles of squint are equal in amount, but as this is substantially true of the ordinary cases of convergent strabismus, the method for practical purposes is sufficiently accurate. For perfect accuracy in all methods of objective measurement the value of the angle α, or rather of the angle γ, or better still κ, should be ascertained. The angle should be determined for near objects as well as for objects at a distance, which require parallelism of the visual lines.

(8) The power of the muscles, viz., their lateral excursions should be noted, also by angular measurement, and

(9) The possible excursions of the punctum proximum of convergence. (Knapp lays down that after an operation for convergent strabismus the punctum proximum of convergence should not be farther from the eye than 5 c.m. Otherwise divergence may arise later.)

As strabismus convergens is an affection of early childhood, and as the younger the child is when brought for treatment the better the ultimate result, it is probable that many of the patients will be too young to admit of examination into all these points. We must be content to determine as many of them as the age and intelligence of the patient allows.

The measures adopted for the cure of strabismus are of three kinds. (1) Optical ; viz., correcting whatever errors of refraction exist. (2) Operative, either tenotomy or advancement of the insertion of a tendon or both combined or folding of a tendon on itself, or partial tenotomy, or advancement, or division of the capsule of Tenon. (3) Orthoptic, or, as Priestley Smith prefers to term it, educative.

There is no need to dwell on the optical treatment. No rational man neglects to correct any anomalies of refraction present in cases of squint.

Operations, in my opinion, should only be undertaken when optical and educative treatment has failed, and the decision upon this point must be left to the discretion of the medical man in charge of the case. Great difference of opinion exists among ophthalmic surgeons as to what operations should be done in strabismus cases. Whether one or both eyes should be operated on, and whether advancement should be the rule or the exception. And also as to what particular method of " advancement " should be performed. There is so much to be said on these points that I shall not attempt to enter upon the arguments in support of the various opinions, as it would unduly lengthen this communication.

From what has been stated, it is evident that as the cause of strabismus convergens is a defective fusion faculty the cure of strabismus must consist in establishing or re-establishing a fusion faculty. Without this faculty a permanent cure cannot be guaranteed, but the eyes will sooner or later assume

their anatomical or functional position of rest. The earlier the treatment is begun the better. No infant is too young to be treated, and it is only in the first years of life that we can expect to develop the fusion faculty. If children are left untreated (as is not uncommon) till they are supposed to be old enough to be proper subjects for an operation, at the age of six or so, all hopes of obtaining fusion are destroyed, and a permanent cure of the squint cannot be depended upon.

If the deviating eye has not the power of fixation, *i.e.*, central fixation, our first effort must be directed to this point, and we must endeavour to make the child use this eye to the exclusion of the other. This we do by covering the straight eye for a certain period of the day for as long a time as possible, so that the child has to pay attention to the visual sensations of the defective eye. In children whose power of fixation is absent at the first visit, it will often be found that the power is present after this treatment has been adopted for some weeks. The treatment can be assisted by instilling atropine into the straight eye, to lessen the optical value of that eye and thereby increase, if possible, the value of the crooked eye. In cases where there is good fixation in the crooked eye we often have the satisfaction of being told after some time that the bad eye is straight, but that the cast is gone into the good eye. This is a proof that good vision can be obtained in the squinting eye. Occasionally we find that atropine in the good eye cures the squint at once, and the cure is usually then permanent if correcting glasses are fitted before the mydriasis has passed off.

If a cure has not been obtained by the above measures, atropine should be put into both eyes, and correcting glasses ordered. The glasses should be worn constantly, and, if necessary, the atropine should be continued for months before recourse is had to operative measures, and meanwhile

the power of binocular vision should be developed by stereoscopic exercises. The great difficulty in these exercises is the habit of suppression of the vision of the squinting eye. This may be got over by making the illumination of the picture exhibited to that eye more intense than that shown to the other eye. We can usually effect this by some little adjustment in any stereoscope, but what is probably the most perfect instrument for educative treatment is the amblyoscope of Worth. It is, however, not an instrument which can be given to patients for home use, and I have no personal experience of it.

The next difficulty is that the angle of deviation is usually so great that no ordinary steresocope brings the images anywhere near the two maculæ. This is overcome by stereoscopes such as Hallwach's, which can be set at any angle from 0 to 50°. It is the best stereoscope that I am acquainted with for this purpose, and its cost is so little that it is within the means of the majority of those who would take the trouble to employ it—12*s.* 6*d.*

The fusion tubes of Priestley Smith, and the heteroscope of the same author, have not very great educative value, but are most useful for ascertaining if simultaneous macular perception is present. When we have found by means of the latter instrument what angle is necessary, we try to elicit fusion of some of the pictures made for that purpose in Hallwach's stereoscope.

Case 1.—As a sample of "orthoptic" treatment, I may cite the case of Miss E. L., æt. 4, who came to me April, 1902, with history of convergent strabismus of right eye for one year. Angle 14 degrees; V. less than $\frac{6}{60}$, but large letters can be made out. Left V.$=\frac{5}{10}$. Right, H.5., Left H.3., by erect image. Atropine for four days brought the eyes nearly straight, and she was ordered to use the drops every second day. Three weeks later the squint had returned, and I tried atropine

in the left (good) eye only every night, and had this good eye bandaged for some time every day, so as to force the crooked eye to act. After one month of this treatment the eyes were perfectly straight, and the child could fix well with the right eye, and see with it, but imperfectly, and I observed that she projected towards the temporal side. Atropine was constantly used in the left eye only till October, the eyes remaining straight all the time, though I observed that on fixing very near objects the left (good) eye tended to converge. The bandage, too, was used daily. Vision of right rose to $\frac{5}{35}$, that of the left being the same as before (under atropine). In October I ordered +5D right, and +4D left, and gave up the atropine. Six weeks later the eyes were straight with the glasses, and without mydriatic. In May, 1903, eyes quite straight with the glasses, and fusion with heteroscope from parallelism to 15 degrees convergence. By stereoscope excellent simultaneous macular perception, but no definite sense of perspective. Stereoscopic exercises are to be used at home, and I expect in this case to develop full binocular vision.

Case 2.—Miss E. J., æt. $3\frac{1}{2}$, seen in October, 1902, with left internal periodic strabismus of one year's duration. Angle about 16 degrees H. 2D, or 3D. Atropine in good eye resulted in a temporary cure, and good fixation was obtained in the left eye. After atropine was abandoned, the squint returned, the right eye now converging periodically. Fusion with heteroscope from parallelism to 15 degrees convergence, but with excentric not central fixation. Atropine in both eyes now put them quite straight and simultaneous macular perception was proved to exist. The case is still under observation, and I expect a perfect cure.

Case 3.—Miss A. A., æt. 11, in 1901. An alternating convergent squint of 18 degrees, with good vision in both eyes. I had seen this child some five years before, but I have lost

my notes. Glasses to correct her hypermetropia (of only 3D) cured the squint, permanently, I believe. In May, 1903, the eyes were straight with the glasses, and the girl possessed perfect binocular vision with true sense of perspective.

NOTES ON A YEAR'S ASYLUM WORK.*

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As usual for some years past, I venture to bring before you notes on some of the more interesting points which have arisen in the practice of the year ended on March 31st.

Causation.—Again dividing the causes of mental disease broadly into the three groups of inherited diathesis, moral and mental wear and tear, and intoxication, the fresh cases of actual insanity admitted during the year may be distributed as follows, the cause assigned being that which appeared to predominate, though not necessarily the only one:—Neuropathic diathesis, 36·36 per cent.; moral and mental wear and tear (including epilepsy), 54·54 per cent.; intoxication, 9 per cent. In the great majority of the cases more than one factor was operative, and distinct neurothic heredity direct or collateral, was present in nearly 73 per cent. This is lower than in the admissions of the previous year (78 per cent.), but certain cases have not been included, in which nothing more marked than passionate temper, eccentricity, or obvious "nervousness" in the relatives could be ascertained. These cases, taking all circumstances into account, were certainly neuropaths from birth, and therefore, it may be assumed, derived their diathesis from their ancestors, so that they should probably be included. If this be done the percentage rises to 90. As before, moral and mental wear and tear are mainly responsible for more cases than either of

* Read before the Section of Medicine of the Royal Academy of Medicine in Ireland, on May 22, 1903.

the other groups of causes, but the share of intoxication is by no means fairly represented by the small percentage in which it seems to have played the leading *rôle*. In one form or other it was probably a factor in more than half the cases, not counting a case of morphinism, sane on admission, which has not been included in the above numbers.

Dementia Præcox.—Next to the forms of mental disease which exist from birth or early childhood, imperfection in inherent power of development is most distinctly shown by the group of diseases which Kræpelin brings together under the above name—viz., hebephrenia, katatonia, and paranoid insanity. These forms of disease, of which the last is somewhat indeterminate in character, all resemble idiocy and imbecility in being due to development arrest, but in them the development has reached a more advanced stage. Furthermore, they are not mere arrests, but are all characterised by a premature involution, a tendency to rapidly supervening dementia, after a comparatively short stage of more acute insanity. A case of *hebephrenia*, of the early part of which an account was given in last year's notes, was re-admitted on May 24th, 1902, having relapsed after a remission of a few weeks. A full study of this case has been published recently,* but the following is a brief summary of it :—

Case 1.—The patient, a lad aged eighteen, with some neuropathic heredity, was admitted on March 1st, 1902. He had led a solitary, unhealthy life ; had masturbated for some years ; and, shortly before admission, had made a fatuous attempt at suicide, which was the immediate cause of his being sent to an institution, He was very depressed at first, and full of delusions of a hypochondriacal and suspicious character, and was physically run down. Under tonic and outdoor treatment he rapidly improved, both physically and mentally, and was discharged in about six weeks. After a fortnight, however, he began to manifest signs

* *Journal of Mental Science*, April, 1903, p. 303

of relapse, and on readmission he showed the same delusional state of mind as before, but in less acute form, and without much depression. He had glycosuria for a few weeks at this period, but it disappeared under dieting, and has not returned. He was brooding, suspicious, and somewhat depressed; full of elaborate delusions of influences at work upon him, and, at the same time, occasionally of his power of benefitting mankind if not "imposed upon," as he put it. There were also hallucinations, occasional fits of noise, and once or twice violence; and, with intervals, he continued to practise self-abuse. Towards the end of his residence here his delusions and hallucinations appeared to be passing off, but there was no marked improvement otherwise, and on the whole he was less intelligent, though in this respect there was some slight improvement before he left. He was removed last January by his father, who wished to try a modified hydropathic treatment. This has done no good, and his prospects are probably hopeless.

The patient's age, and the course of the illness so far (early depression with a futile suicidal attempt, delusions and hallucinations gradually passing off, a remission, some mental weakness, and the general character of the symptoms), render the case a fairly typical example of the first variety of dementia præcox. The following probably belongs to the second vareity, *katatonia* :—

Case 2.—The patient, a married but childless woman, aged thirty, was admitted early in last June. She had a bad family history, and is said to have been peculiar for a considerable time; and she had become connected with one of the more emotional religious sects. Over a year before admission she imagined that she was being preached at in church, and shortly afterwards became acutely insane. This passed off almost immediately, but during the summer and autumn of 1901 she was melancholic, and had depressing delusions on religious matters. After a short improvement she somewhat suddenly became violently excited, with grandiose delusions, also of a religious type, and apparently

hallucinations. This was followed by a period in which she was perverse, from time to time stuporose, and wet and dirty in her habits, while the elevated delusions continued. In the beginning of 1902 she refused to speak for six weeks. She then became more variable, but on the whole was perverse and obstinate, sometimes wet and dirty, and inclined to expose herself, with delusions of being damned. Except for a day or two at first, she has, since her admission, almost up to the end of March been in a state of resistive stupor, as a general rule lying quietly with her eyes closed, having almost invariably to be tube-fed, and passing under her. She almost always refused to wear night linen, but retained her clothing during the day as a rule. When any attempt was made to move her she would resist violently and viciously, spitting and struggling. In the summer she was submitted to a course of thyroid feeding, but was only partially roused by it, and soon relapsed ; and of the other drugs tried, the only one which produced any marked effect was, curiously enough, trional, given in 10 gr. doses thrice daily. Under this she always roused somewhat, but it soon lost its effect. Towards the end of March, after a period of [still deeper stupor resembling coma, the resistiveness seemed to be passing off, and some elevation took its place, and on the 31st she walked downstairs and in the grounds. There have been some other signs of improvement, notably the return of the menses, which had been in abeyance during the autumn and winter ; and the future course of the case is a matter of much interest. It may be added that she seemed, so far as could be judged, to retain her perception of what was going on around her, and on one occasion, when frightened by another patient's screaming, she even got up and left her room, and was more rational for the remainder of that day.

The succession of melancholia, mania, and stupor, the resistive character of the latter, the delusions and hallucinations, as well as other features in the course of the case, all point to katatonia ; but some further observation is required before the question can be absolutely settled.

Stuporose melancholia.—It is probable that some writers would include the following case, admitted during the year, in the category of katatonia. It seems, however, to be an excellent example of a form of stupor which is not katatonic, for reasons which will be seen later :—

Case 3.—The patient, a married woman, aged thirty-three, comes of a nervous family, though no neuropathic history has been elicited. She had sustained a severe fall on her head when out riding some 15 years before, and had frequentiy suffered from headaches since. Just before the present attack she had had an abscess in one of her fingers. She is said to be naturally rather sulky and obstinate, but very nervous ; and for about two years has been worrying unnecessarily about a certain action on the part of a relative. Early in 1892 she became parsimonious, and then acquired delusions of having no money (even when she had £7 or £8 in her pocket at the time), and grudged necessary expenses. Next, she thought that the police wished to arrest her for starving her household, and then began to dislike her husband, and to refuse food. On one occasion she is said to have attempted suicide. Various measures, such as change, Weir-Mitchell treatment, &c., were tried without avail, and finally she was sent to Maryville. On admission she was very emaciated, looked much older than her years, and was stuporous and resistive, but no organic disease could be detected. Her physical condition has considerably improved under treatment, but mentally she remains much the same. Her state varies frequently between a quiet stupor, in which she sits or stands motionless and silent (mutism) and often allows her limbs to remain for a short time in any position in which they are placed (catalepsy), and a state of acute restlessness and resistiveness, in which she looks intensely miserable and is very noisy, repeating one cry for hours in an automatic sort of way (verbigeration). Even in the latter state, however, there is still a great deal of stupor. She has frequently to be tube-fed, is wet and dirty in her habits, and at times wakeful at night. Occasionally she recognises her relatives when they come

to visit her, and seems glad to see them, but not always. Various forms of special treatment—thyroid feeding, lavage, morphia or opium hypodermically and by mouth, and latterly over-feeding —have been tried without much apparent result, at least on the mental side ; but the case is by no means a hopeless one, and improvement may appear at any time.

It will be seen that such a case differs from a typical one of katatonia in the absence of marked heredity, of a maniacal stage and exalted delusions, and of a tendency to remissions, as well as in the existence of marked depression all through. It seems, therefore, more accurate to call this form of disease by the name at the head of this section.

Transition Cases.—Lying somewhere between dementia præcox and paranoia are certain cases of hereditary psychosis perhaps more commonly seen amongst the educated classes than in public institutions, which are not always technically insane, but always seem to be trembling on the verge of insanity. Such patients may not have actual delusions, but they often betray a delusional attitude of mind, shown by morbid opinions and distorted views of their own condition and of the actions of others. They are always imagining slights, and doubtful of the affection of their relations, or of the fidelity of their husbands or wives, as the case may be ; or again, they may show their mental unsoundness chiefly by ill-judged or immoral conduct, and are then sometimes set down as cases of "moral insanity." They may easily become dangerous to themselves or others, and their prospects are naturally far worse than those of most sufferers from pronounced acute insanity. Two voluntary boarders admitted during the year belong to this class.

Case 4.—A girl of twenty-six, with very bad heredity, had the following history :—She had led a healthy, open-air life, but appears to have had a tendency to morbid sentimentalising. She was more than once engaged to be married, and latterly had

shown sexual excitement and practised self-abuse. After an attack of what was possibly influenza, she became depressed, broke off an engagement, and began to try to run away from home, sometimes insufficiently clad ; and finally she exposed herself on several occasions in a condition of complete nudity. These acts were impulsive, and ordinarily she was to all appearance reasonable enough. She was thin and nervous on admission, seemed in poor general health, and was somewhat depressed, with high blood-pressure. She deplored her loss of modesty and truthfulness, which she said was so much the reverse of her usual character, but during her residence she showed neither the one nor the other. Under tonic treatment she improved much, both mentally and physically, and was discharged, to all appearance well, in about three months. She was not properly looked after nor judiciously treated subsequently, however ; and about two months after her discharge a successful attempt at suicide terminated her existence.

In this case there was no evident intellectual disturbance at all commensurate with the disorder of conduct, for which no satisfactory reason could be elicited from her. In the following, however, the mental disturbance was considerable :—

Case 5.—A married woman of thirty-one, also with some neuropathic heredity, had a history of an attack of puerperal mania about seven years previously. She had always been of a passionate temper, and her past had been such as to imply a degree of moral imbecility. Latterly she and her husband had been living in a lonely district, and her sexual health was very bad. She was always jealous of her husband, but of late became frantically so, alleging misconduct on his part with her governess ; and she would give way to ungovernable outbursts of passion, using the vilest language. There were no real grounds for her jealousy, but she twisted and distorted every occurrence to support her belief in her husband's inconstancy ; and she had very little reticence, and would readily detail her fancied wrongs, sometimes publicly and passionately, but when quiet in a more

or less reasonable manner. She ate and slept very little, and was rapidly losing weight—a fact which appeared to afford her some gratification. She was very hysterical, and had a number of hyperæsthetic areas in various regions, and she suffered from endometritis, retroflexion, and fissure of the os uteri. She improved somewhat under treatment, but became worse again, and after two months returned home. She was no better there, however, and as a last resource she was, by my advice, submitted to a course of Weir-Mitchell treatment, which seems to have been of benefit, though continued mental well-being is unlikely.

Case for Diagnosis.—The following case is exceedingly interesting from the point of view of diagnosis :—

Case 6.—Business man, aged forty-eight, married. Very bad heredity, both direct and collateral. Always quiet, courteous, reserved, religious, and free from vice ; dull, but a good business man. Venereal disease excluded. After a spell of over-work and anxiety he suffered from influenza, and about 15 months before admission he had one or two very transient attacks of excitement, and grew depressed and hypochondriacal, with loss of will power and self-confidence, and of ability to transact his business, of which latter fact he was aware. This condition lasted with some slight improvement for about a year, and then, when on a visit, he suddenly changed completely, became jovial, and fond of practical jokes and of playing the fool. He was full of absurd conceit about his abilities, and talked of being a poet and a composer, of bringing out a play, and of making £100 by publishing a silly article which he had written. His appetite became voracious, and his inclination for sexual intercourse greatly increased. On admission the pupillary reaction to accommodation was found to be sluggish, and in one eye the consensual light reflex was slight. Subsequently commencing optic atrophy was found, most advanced in the left eye, the pupil of which was large ; and there was some photophobia and dimness of vision. (The patient had sustained a blow on this eye about a year before, and sight had been failing for some time.) There was some fibrillary tremor of

the tongue, and slow speech, with slight slurring of certain letters at times (this was only at first). but the knee reflexes were normal, and there was nothing remarkable about the gait, and no apparent decrease of muscular power. The mental state was marked by elation, with an absurd opinion of his powers in all directions, and silly projects—*e.g.*, he intended to publish a song which he said he had written and composed, but which was simply "The Wearing of the Green," with a few alterations in the words. There was, however, freedom from belief in absolute impossibilities. He was very angry at being sent to an asylum, made a determined attempt to escape, and kept grumbling at everything, but would change readily and become elated. He was also slightly hypochondriacal, and was emotionally variable. Tonic treatment was adopted, and in a month he showed some improvement. It was then decided to try iodide of potassium (although syphilis seemed to be excluded), and under this he continued to improve, and was sufficiently well to be discharged in three months, by which time he was much more rational, and agreed to abstain from business for a time, though he still maintained that he had not required asylum treatment. So far as is known, he has done well since his discharge about six months ago.

Had this patient been known to have had syphilis the case would undoubtedly have been set down as one of incipient general paralysis ; indeed, although syphilis was excluded as far as it can ever be, general paralysis was the diagnosis arrived at by most of the medical men who saw the patient about the time of his admission, and it is not even yet absolutely negatived, as the apparent improvement may be merely a remission. Still, the physical symptoms were very badly marked, and the ocular phenomena present were to a considerable extent accounted for by the optic atrophy, which may have been started by injury, as stated, so that possibly we have to do merely with an attack of reactionary simple mania following an exhaustion melancholia in a

neurotic subject. In any case the further history of the patient is a matter of interest.

Chronic morphinism.—The following is worth notice on account of the unusual ease with which the drug was discontinued :—

Case 7.—The patient, a young medical man, free from neuropathic heredity, who had been a keen student and an athlete, began to take morphine for the purpose of relieving the sensation of fatigue from overwork in his profession. At first he took pharmacopœial doses, but for about 18 months before admission his daily quantity was 6 to 8 grains. He found that the effect was much the same whether the mode of administration was oral or hypodermic ; in the former case he used the dry powder. Fortunately, beyond relief of fatigue and avoidance of the abstinence symptoms, the drug produced no pleasant sensations, and was of late taken solely to obviate the latter. The bodily effects were muscular weakness and wasting, with some digestive disturbance (nausea and vomiting, especially in the morning). There had been no necessity to increase the dose for some time before admission, and, as a matter of fact, it must have been much in excess of his requirements, as just before admission the daily quantity had been reduced to 1 gr. without causing discomfort, and with the result of stopping all digestive trouble. On admission, he looked pale, debilitated, and nervous, and if left too long without morphia began to suffer from restlessness, muscular twitchings, and cutaneous sensations resembling that produced by the plucking out of hairs. These, with wakefulness, were the only abstinence symptoms, and appetite and digestion have been good throughout. Only on two occasions since admission was he given more than 1 gr. in the day, and in 17 days the drug was stopped altogether. No unpleasant symptoms or cravings have occurred in the intervening period of nearly six months, and under tonic treatment he has become strong and well, and able to do some mental work.

The patient's clear heredity and previous healthy life

combined with absence of any seductive effects from th use of the drug, are doubtless accountable for the ease with which its discontinuance was effected in this case. It may be added that he was himself most anxious to be cured of the habit.

Physical accompaniments of mental disorder.—The two deaths which occurred during the year were both due to heart-failure in old persons, who were the subjects of *chronic nephritis*. Both were cases of melancholia, and it has been our experience that depressive states of mind are the psychoses which most commonly accompany chronic renal disease. One of the patients, however, showed great mental improvement before her death.

Systematic periodical examination of the urines led to the discovery of small quantities of *albumen* in six other cases, but in all but two (a melancholic known to be suffering from chronic nephritis, and a case of cystitis and probably nephritis) it was quite transitory. All the cases were more or less depressed, except one.

In the same way *glycosuria* was found in no less than eight cases, but only on one or a few occasions, except in that of a single patient. The cases included :—chronic melancholia, 1 ; acute melancholia, 1 ; stupor, 1 ; hebephrenia, 1 ; katatonia, 1 ; chronic mania, 1 ; dementia, 1 ; and a case of minor epilepsy, who had several attacks of acute insanity during the year—more than he has ever had before. In this case the glycosuria still persists, but exerts no apparent influence on the bodily health. His mental state is usually one of mild depression, but the acute attacks began with exaltation and passed into very acute delusional melancholia. Thus all the cases, except one, display a somewhat depressed state of mind—a result which, upon the whole, harmonises with previous observations.

The mean arterial pressure was observed in two fresh cases,

and fresh observations were made in two of the former ones. In both of the fresh cases it was elevated, one being the case of katatonic stupor, and the other, the fourth case described above, which was, it will be remembered, somewhat depressed. In the older cases, one of subacute melancholia showed a normal pressure, and in the second, one of acute melancholia, the pressure failed to fall with improvement in the symptoms. It was, however, unfortunately not taken after full recovery.

Physical health.—The health of the institution during the year has in general been good, and there have been no epidemics. The only case calling for notice under this head is that of a lady of sixty, who had a severe attack of streptococcus cellulitis last winter, which appeared to be cured entirely by anti-streptococcus serum.

Case 8.—On December 4th she inflicted a slight cut on the back of her right hand, which speedily inflamed, and in spite of antiseptic applications the inflammation continued to spread. On December 7th free incisions were made, but only served to relieve tension, as there was very little pus. Mr. E. H. Taylor was called in consultation, and as the inflammation continued to spread and right sided pleurisy developed on the 13th, he advised a resort to serum. 20 ccs. were injected on the 14th, and 10 ccs. daily on the four following days. On the 14th a systolic bruit was audible towards the apex of the heart, and on the 18th the left popliteal vein was found to be thrombosed, with œdoma of the leg. Nevertheless, the patient began to improve from the time of the first dose, the unfavourable signs all passed off, and she made an excellent recovery, uninterrupted except for a slight feverish attack, with rash on the elbows and knees, due to the serum. As has not infrequently been observed in such cases, the patient's health, both bodily and mentally, is actually better since this attack, but her insanity is of too long standing for any great degree of improvement. It may be added that streptococci alone were found in cover-glass preparations made from the pus.

Treatment.—Five patients were subjected to *thyroid treatment* during the year. One of these, a case of recurrent melancholia, which was treated in the same way in the previous year, continued to derive considerable benefit from 5 gr. doses of the dried gland thrice daily, given only during the attacks, which appeared to be mitigated thereby, both as to severity and duration. In the other four cases, which included two of melancholia (one stuporose), one of katatonia and one of subacute mania, the drug was given in large doses for a short period, during which the patient was treated as if suffering from a slight fever. The first patient, one suffering from melancholia of about a year's standing, received 460 gr. in 9 days, and reacted well physically. No change took place at first, but she soon began to improve, and was discharged on probationin about three months. Unfortunately, the improvement has not been permanent, and she has since returned. The katatonic patient received 630 gr. in 11 days, but although there was fair physical reaction, any mental improvement was very transitory. The case of stuporose melancholia was treated with 445 gr. spread over 8 days, but showed no mental improvement, though this is one of the cases where such might have been looked for. The patient suffering from subacute mania took 475 gr. in 9 days, and showed marked, but not very permanent, improvement soon afterwards. Thus, the results this year were not very remarkable, though in three cases more or less improvement, unhappily only temporary, did take place.

Superarenal administration was tried in two cases. In the first, one of acute mania, doses at first of 10 gr. and later of 15 gr. were given for about a month, during which the patient certainly improved, but as some improvement continued after they were stopped it cannot certainly be claimed as due in the first instance to the drug. In the second, also of acute mania, doses rising from 10 gr. to 20 gr. thrice daily were given on

about 10 days, with no apparent effect. Later on the administration was repeated and seemed to have no effect at first, but marked improvement took place on the day on which the drug was stopped, which may have been due to reaction, or may have been a coincidence.

This last case, which was a very difficult one on account of the acuteness and violence of the symptoms, derived considerable benefit from hydropathic treatment in the form of the wet pack, combined with over-feeding. The pack, which was tried by the suggestion of Dr. Conolly Norman, was used for about 8 hours daily for some weeks, and was the first therapeutic measure to yield any good result. The most marked effect, however seemed to be produced by the free administration of arsenic, under which the patient has made rapid progress, both mentally and physically, and has gained greatly (about 1½ stone in weight). Unfortunately, cases of acute mania are difficult to draw correct conclusions from, as they tend at times to recover rather suddenly, even without medicinal treatment.

As has already been noted, one case which greatly resembled early general paralysis seemed to derive some benefit from large doses of potassium iodide, although syphilis was as far as possible excluded.

In one of the glycosuria cases the output of sugar was reduced to an infinitesimal quantity by aspirin, given in 10 gr. doses thrice daily, as recommended by Williamson.*

* *Brit. Med. Jour.*, II., 1902, p. 1946.

SECTION OF SURGERY.

PRESIDENTIAL ADDRESS:

THE CONFLICT OF MEDICAL TESTIMONY IN COURTS OF LAW.*

By Sir Lambert H. Ormsby, M.D., F.R.C.S.;

President of the Royal College of Surgeons, Ireland; one of the Senior Surgeons of the Meath Hospital and Co. Dublin Infirmary.

The conflict of medical testimony in courts of law has been for many years a matter of great moment to us all. Therefore, I need not apologise for making it the subject of my present address.

I have frequently observed in the Dublin law courts the most distinguished physicians and surgeons divided in their opinions as regards the cause, present condition, and probable future result of real and imaginary diseases or injuries. In face of the conflict of medical evidence it is no wonder that judge and jury sometimes almost find it impossible to arrive at the justice of the case. Let me give you a typical example—railway shock. Where a person complains of injury in a railway collision, a surgeon is called on, either by the alleged injured person or by the railway company, to express his opinion. He must consider the case from at least four aspects :—

1. As to whether the person complaining has really been injured at all.

2. If injured, what is the nature and extent of the injury ?

3. Whether the injury is permanent, or likely to be permanent ?

4. If not permanent, when will restoration be ensured ?

* Presidential Address read at the Opening Meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland, on November 14, 1902.

As regards the first point the great difficulty depends upon what position the surgeon holds to the alleged injured person, whether he is the usual medical attendant, or whether he is engaged in the interest of the railway or other defendant company.

If he is the usual medical attendant of the patient his task is less difficult. The patient will inform him without reserve concerning everything connected with the alleged injuries, and from previous knowledge of his constitution the surgeon will have ample opportunity of comparing accurately the patient's present condition with his state previous to the accident, and from his personal intimacy with the patient he will be in a position to estimate any overstatement of his sufferings.

On the other hand, where the surgeon is the recognised medical adviser of the railway company, or he may happen to be called in for the occasion to protect their interests, his tasks and duties are not nearly so simple. In accordance with professional etiquette he cannot visit the patient unless in the presence of or in consultation with the patient's medical attendant.

This usage is, of course, right in the main, but it has disadvantages. It often leads to inconvenience and loss of time in order to arrange an appointment that will suit all parties concerned. Secondly, when the patient has been made aware of the projected visit he prepares himself for the ordeal in great excitement, describing his sufferings in such a striking and vivid manner and with such minute detail as to compel the medical examiner to use all the knowledge and sagacity he possesses to distinguish whether what has been detailed to him is real, feigned, or exaggerated. Hence it has occurred to me, and doubtless to others of my brethren also, that the cause of truth and justice would be better served, in some instances at least, by leaving it to

the surgeon to exercise his own discretion in visiting without notice certain patients alleged to be suffering from injury. Then, and only then, will he see the patient in his natural or real state. Such visits I feel certain would help greatly to distinguish the cases of feigned from those of actual injury. In support of this view I can cite eminent authority.

Mr. Erichsen, referring to the conduct of railway surgeons when visiting a patient on the part of the defendant company, suggestively observes: "The patient is not yours—he probably does not wish to consult or even see you. Perhaps you are admitted to an interview with him and to an examination of him only after consultation with his solicitors and by their consent, or in virtue of the judge's order. He most probably looks upon you as being hostile to him and as coming with a view to making light of his misfortunes. Hence you will usually have but few opportunities allowed you of seeing the patient, generally only once, at most, twice or thrice. He is always prepared beforehand for your visit, he is excited, annoyed, or apprehensive with respect to it. You do not consequently see him in his usual frame of mind, and the mental disturbance thus occasioned may react injuriously upon and greatly aggravate his physical ailments. Above all you have no opportunity of taking him unawares and unprepared when your visit is expected, because, if unexpected you would have a good opportunity of judging whether this symptom or the other really existed, or if it existed, to the alleged extent."

Speaking from personal experience, I have occasionally gone with the medical attendant of the patient without previous notice of my intended visit having been given, and the information gained under such circumstances has been at times remarkable. In one instance, when we entered the room the patient was sitting on a chair. He received us pleasantly in a laughing, joking manner, not having the least

suspicion that I was the railway company's doctor. The moment he was informed who I was and the nature of my visit the whole aspect of his face suddenly changed. Instead of a pleasant open countenance, he assumed a sullen, dark, dejected look, and seemed greatly annoyed that he had been taken unawares. In another instance where my visit was expected, before my examination was over I was convinced I had to deal with a case enormously exaggerated, for the injury the man had received was so slight as to be incompatible with the symptoms described by the patient himself. The patient was so determined to aggravate and exaggerate his symptoms that for many months he prepared himself—by a continued invalid *regime*, and nursing his injuries, mental and physical, so that his imaginary ailments grew into stern realities—so that he became a confirmed wreck, all for the few hundred pounds he received for compensation. This man managed his case so well that he deceived his own medical attendants to such a degree that they were indignant when I ventured to suggest that some of the symptoms complained of were exaggerated. On another occasion I paid a visit on behalf of an Accident Assurance Company to a gentleman who it was alleged had received very serious injuries by falling off his bicycle in collision with a car. It was alleged that this gentleman was in bed. On arriving at his house and asking who was his medical attendant, I found he had no medical man attending him, that he was not at home, but was that day out shooting on the Dublin mountains.

Of course I am not suggesting that severe and permanent injuries do not take place as well as other accidents. I have on many occasions attended patients who have been severely injured. But I do say that one of the greatest difficulties, in a medical man's investigation is to distinguish between real and feigned injuries. Hence the regrettable conflict of

medical testimony in the law courts. I have heard advocates comment upon it as derogatory to the members of a noble profession and as calculated to defeat justice. An honest difference of opinion is quite another matter, but it is the direct conflict of evidence as to the presence or absence of serious symptoms in obscure cases, like railway shock or railway spine, that lead the public to conclude that doctors will expand or contract their powers of observation as to diagnosis and prognosis according to the interests of the side for which they are paid.

In this city, when an important case of personal injury is to be tried in the law courts, the solicitors retain the services of a powerful Bar, usually three K.C.'s and a junior on each side. Next to securing the Bar the question of medical witnesses crops up. Counsel directs the solicitor to have a consultation with the medical attendant, with the result that the doctor recounts what he knows. Senior counsel may think that his evidence is weak and will not influence a jury or that he is not sufficiently known. Accordingly some leading surgeon is frequently retained to back up the medical attendant's opinion. This gentleman is approached by the solicitor. The fee is arranged, and his attendance is secured to give evidence for the plaintiff. The moment the defendant company learns that an eminent medical witness has been retained their solicitor is put in motion to secure an equally eminent medical expert to give evidence on their behalf. Then it is sometimes thought desirable to have another medical man on behalf of the plaintiff. This is no sooner known than the defendant company in like manner engages the service of yet another doctor. Thus the case comes on for trial. The leading medical witnesses are heard on each side. Hard swearing takes place, resulting in conflict of testimony. How does this affect the court? Lord Coleridge says: "Such conflicts of scientific opinion are puzzling

to a judge who knows little, and to a jury who probably knows less, of science."

His lordship, it may be observed, omitted all reference to the knowledge of medical science possessed by the Bar, but it probably would be only fair to assume that it does not occupy a higher standard than that at which the learned judge so modestly places the acquirements of the Bench.

Conflict of medical opinion in courts of law I know gives persons who are inclined to speak slightingly of the profession an opportunity to misrepresent the real point at issue, as regards the difference of opinion, which frequently is more apparent than real. Indeed, I feel certain that it occurs much less frequently than is represented. Mr. Erichsen thinks that in at least 90 per cent. of all cases of surgical injury in which claims for compensation are made there is perfect accord between the medical men concerned as to the nature, the extent, and the possible duration of the injury. Such cases as these are necessarily settled out of court, and as they do not become the subject of judicial investigation they do not attract the attention of the public in the newspapers. In the small remainder of the cases, not amounting to one-tenth of the whole, a discrepancy or conflict of opinion takes place which is not as a rule with respect to the facts of the case, but has reference to the possible pathology, the ultimate extent of the injury, and the probable duration of the symptoms. When we consider that these injuries are chiefly lesions of the brain and spinal cord, affecting organs and structures the pathology of which is not as yet accurately determined, and consequently is less understood than that of any other part of the body, we cannot feel surprised that there is an occasional want of unanimity even among men who are exceptionally well informed on the subject of the injuries and diseases of the nervous system.

In every department of life conflict of opinion occurs. In

politics, religion, engineering, chemical and biological science, and in the law itself to at least as great an extent relatively as that which is met with in medicine and surgery. Let us see, then, to what extent conflict of opinion occurs in the law courts among the members of our own profession.

There are three classes of medical witnesses who appear in the small proportion of compensation cases which in the end drift into courts of law.

First, there is the *bona-fide* medical attendant of the case. Secondly, there is the recognised medical officer of the railway or other company. And, thirdly, there is the consulting surgeon or medical expert called in from his acknowledged acquaintance with the subject of the injury alleged to have resulted in the case at issue. The first two witnesses detail the actual facts, the present condition, and the various symptoms and signs observed by them or ascertained after careful examination, and the weighing of the objective and subjective symptoms present. As a rule there is not much difference of opinion between these witnesses. The conflict of testimony generally appears among the "experts" called on either side to testify as to whether the injury complained of is feigned or real, and if real, the probable duration of the lesion and the future effect it may have on the patient. I have already stated how these experts have been brought into the case, namely, that their services have been secured by the litigants themselves to give evidence. I think medical experts ought to be nominated by the court, and paid under the directions of the court.

I agree with Mr. Erichsen when he says: "The method of appointing experts is radically wrong and is productive of many evils." A medical man who is retained and paid by a litigant, being only human, does not see why he should not earn twenty or thirty guineas for his opinion when opportunity occurs. With the purest intentions possible, un-

consciously, almost instinctively, he is apt to become biassed in favour of the side he is called upon to support. He is inclined to look for the strong points on his own side and the weak ones on that of his opponents. It is fatal when a medical witness becomes an advocate. He should be in a position to guide the court in the direction of what he believes to be the truth. Conflict of opinion among surgeons as regards actual facts rarely or ever occur in cases of pure surgical injury, such as fractures, dislocations, ordinary wounds, but it is as to the deductions from admitted facts, and the opinions that may be legitimately based thereon, that different views are expressed. The difference of opinion thus conveyed appears to a non-medical tribunal to be much wider than it really is. It is often, as has been said by Mr. Erichsen, rather a difference of degree than an actual divergence of opinion as to actual conditions, and if the case were tried before a tribunal possessing the requisite amount of medical knowledge to form an independent judgment, these differences would be narrowed to a very slender line, if not reconciled. Sometimes discrepancies in scientific opinion cannot be explained away, or due value assigned to conflicting statements in consequence of the want of scientific knowledge on the part of the tribunal before which the case is tried.

How is it possible, to quote Lord Coleridge again, for a judge who knows little of science, and a jury who knows less, to form a trustworthy estimate of the scientific medical evidence that is brought before them ? This is especially the case when that evidence relates not to matters of fact but to matters of opinion on some of the most unsettled problems in physiology and pathology, namely, those connected with the functions of the brain and spinal cord.

What would be said if a leading physician or surgeon, having little or any real knowledge of law, were asked to try a case involving some of the most intricate, obscure, and

complicated questions in the law of real property ? Suppose before him several King's Counsellors, debating those questions from opposite standpoints. Would it be possible for him to come to anything like a trustworthy conclusion, or one that would be satisfactory to the members of the Bar ? In the ordinary arbitrations for the compensations to be paid for lands compulsorily taken questions of law arise, and the arbitrator is entitled to have a legal assessor to guide him.

Surely the cases are parallel : on the one hand, the judge who knows little of science in a case which teems with scientific and technical possibilities of the most obscure character ; on the other hand, a surgeon who knows less of law dealing with a legal problem.

Therefore it is that I respectfully suggest that the court in actions for personal injury should be assisted by a medical assessor of undoubted knowledge and eminence who would assist the judge, enabling him to weigh and estimate the true value of the expert evidence given *pro* and *con*. If in the Admiralty Court it has been found desirable for the presiding judge to call to his assistance two nautical assessors, who have practical knowledge and experience in navigation where there is a question of responsibility for a collision, how much more should it be necessary for a judge in cases of railway shock to call to his assistance medical assessors selected and paid under the direction of the court who are above and independent of the contending sides, and who could weigh all matters of medical evidence at their true value ? So strongly did the Council of the Royal College of Surgeons in Ireland think on this matter that last year several discussions took place. On March 7th, 1901, notice of motion was given in these terms :—

" That the Council of the Royal College of Surgeons in Ireland is of opinion that the conflict of medical testimony so often apparent in the law courts is derogatory to the profession and is fre-

quently subversive of justice. The Council, therefore, consider it desirable, on public grounds, that provisions somewhat similar to those already in force under the Workmen's Compensation Act, 1897, should be made for the appointment of independent medical referees in all cases in which there is likely to be a conflict of medical testimony where suitors seek compensation for personal injury."

A sub-committee of the Council was appointed to consider the matter, and their report came up for discussion at the Council Meeting, April 2nd, 1901. They recommended the adoption of the following resolution :—

"In cases of actions for damages for personal injury, the Council of the Royal College of Surgeons in Ireland is of opinion that the Court should obtain an independent surgical opinion, having regard to the necessary technical nature of surgical evil dence, especially in cases of alleged injury to the spine."

After considerable discussion, the Council unainmously adopted a resolution in the following terms :—

Resolved,—"That the President and Council of the Royal College of Surgeons in Ireland having regard to the necessarily technical nature of medical evidence, are of opinion that in cases of actions for damages for personal injuries, the court should obtain the assistance of a medical expert other than those employed by the parties in the suit."

This resolution was printed and a copy sent to each of the judges of the Supreme Court of Judicature in Ireland. But, so far as I am aware, the judges have never replied to this communication.

The action of the Council is not generally known. Perhaps this is the first *quasi*-public intimation. The administration of justice is at all times a subject of public concern. Hence I respectfully venture to hope that the suggestion of the Council of the Royal College of Surgeons, a suggestion which tends to the dignity of the medical profession and to the promotion of the ends of justice, will be duly considered by his Majesty's judges in Ireland and England at an early date.

LAMINECTOMY FOR PARAPLEGIA FOLLOWING CARIES OF THE SPINE.

By Sir Thomas Myles, F.R.C.S.

My communication to you to-night will be very brief, but, I trust, may not be entirely devoid of interest to the Section. I do not know if the experience of other members of the Section on the subject of my paper is as limited as mine, but for my own sake I hope it is not, as my object to-night is to elicit information, rather than to impart it.

I have not made any special inquiry as to the number of cases of Potts' palsy that have been operated on in Dublin, but I think the total number is not very large, and I believe that the subject has not up to the present been formally offered for discussion.

This must be my apology for asking your attention to the subject this evening.

The cases I have to bring before you in which I performed Laminectomy for the relief of the palsy following caries of the spine are only two in number, and therefore quite useless as a basis for trustworthy inferences. For what they are worth in themselves alone, I lay them before the meeting.

The first case was that of a girl aged 8 years. Her history was as follows:—She was admitted to the Richmond Hospital on the 7th December, 1901; and her mother stated that she had been unable to walk for the preceding four months. The child had formerly been an out-patient, and had been treated by my friend Dr. Harvey, who had encased her in a plaster of Paris jacket.

It was while she was wearing this jacket that the weakness of the legs first manifested itself.

On examination I found that she had complete paraplegia, could not make any movement of her legs, which were markedly wasted, but not rigid. She had lost control also of the bladder and rectum. Tactile sensibility was present, but dulled and slow. Plantar reflexes were absent, but patellar reflexes increased. No ankle clonus could be elicited. The curve in the spine was very pronounced, but was rather an arc of a small circle, than the sharp angle usually seen.

There was no tenderness in any part of the spine, and pressure on the head and shoulders did not cause pain, indicating a quiescent condition in the carious process. She was very anæmic and feeble, and her disposition rather phlegmatic. She never complained of any pain along the the intercostal nerves.

After due deliberation, as the child was apparently a hopeless paralytic, I determined to give her the chance of the operation.

The operation itself was simple and easy. An incision of some 7 inches in length was made in the middle line, and the spinous processes and laminæ of about five vertebræ, from the 4th to the 9th dorsal, were cleared of their muscular covering. The spines were then chipped off with bone forceps, and the laminæ were attacked, first at the root of the spinous process, and then bit by bit eaten away with Rongeur forceps. The removal of the first arch is always difficult, as every surgeon knows, but when once it has been removed, as many more as may be necessary can easily be taken. Owing to the exaggerated convexity of the spine in these cases, there is need for very great caution in this part of the operation, as in the removal of the ligamentum subflavum the membranes, and presumably the cord under

them, bulge prominently into the aperture, and may easily be irreparably injured.

In this particular case this difficulty was very marked, and the operation, consequently, was tedious. After some delay I removed the laminæ and spines of the four dorsal vertebræ from the 4th to the 8th, and exposed the membrane of the cord. Much to my astonishment they seemed perfectly normal. There was no caseous mass pressing anywhere on the cord, there was no evidence of pachy meningitis, nor could I detect any bony projection in front pressing on the cord. The membranes were flaccid, and apparently not adherent to the cord. In fact save only that the cord in its membranes bulged into the wound, it might with truth be described as perfectly normal.

I confess frankly that this was a disappointment to me. I felt morally certain that with such complete paralysis as I have described to you I would have discovered some obvious gross lesion to account for it.

I did not feel justified in opening the membranes under these circumstances, so I closed the wound, first drawing the muscles gently together over the cord by a row of buried catgut sutures, prepared by the formalin method ; the skin wound being closed by silkworm gut sutures.

The dressings and sutures were removed on the ninth day, and the wound was seen to be completely healed.

On the day after the operation the sister in charge told me that she had noticed the child had moved her legs slightly, but I could not elicit either then, or for many weeks afterwards, any evidence of restoration of power.

After the seventh week, however, she began to move her legs, first very feebly and evidently with great expenditure of will power, and from that on the improvement was rapid and continuous ; so that in a few days she was able to stand without support, then to slowly make a circuit of the ward,

holding on to the tables, &c., for support, and finally to walk freely and rapidly. She left the hospital able to run and walk as well as any girl of her age.

The obvious question that must occur to everyone, as it occurred to me, is this : Was the operation in any way responsible for the recovery, or would the child have recovered had no operation been performed ?

I am aware that many men of experience state that most cases of paralysis of this type will recover if treated by rest alone, or by rest and extension combined. This child had been on her back for many months, without any sign of improvement ; the reverse, rather, was the case, as during her stay in hospital the paralysis was becoming more complete.

On the other hand, if we assume that the operation was the cause of the improvement, what was the cause of the paralysis, and how did the operation relieve it ? This opens up the really interesting question in these cases, viz., the exact cause of the paralysis in angular curvature of the spine.

In all the standard works on the subject, the paralysis is alleged to be due to pressure in the first instance, followed later by either inflammatory or degenerative changes in the cord itself. The pressure is attributed to the following factors :—

1. Direct pressure by the deformed or displaced bones
2. Pressure of caseous debris.
3. Pressure of an abscess sac.
4. Chronic thickening and contraction of the membranes.

It is extraordinary how very little precise information on this subject is available. I cannot gather from what I have read on the subject that any definite attempt has been made to assign a pathological basis to the paralysis. In most

cases recorded by Mr. Arbuthnot Lane an abscess was found pressing on the cord; in others recorded by Sir Victor Horsley and Sir William Macewen, masses of caseous debris and thickening of the membranes were observed.

One can easily understand that a caseous mass, or an abscess sac, or a bony fragment, or projection pressing on the cord, or the contraction of thickened, chronically inflamed membranes, may, by interfering with the nutrition of the cord produce secondary degenerative changes with associated loss of function. All these are easily understood with our present knowledge of the functions and pathology of the cord, but how is one to explain such a case as mine, in which no pathological change was visible, save only the extraordinary increase in the dorsal convexity of the spine? The only explanation I can offer is that this exaggeration in the normal curve put undue tension on the tissues of the cord, and so interfered with its ordinary, and the treatment has allowed time for actual degenerative changes to take place in the tissues of the cord, which again require considerable time for their regeneration and restoration of function? If this is the explanation, the inference is obvious that we ought not to persist in our present methods of postponing operation until prolonged rest and mechanical method have failed to relieve the symptoms.

My other case was that of a young woman, aged 28, who had been paraplegic for 9 years. She was supposed to have fractured her lumbar spine by falling from a swing when about 19 years old. I am inclined to think this diagnosis was an erroneous one, as the spine presented the usual sharp angular projection that is met with in cases of caries.

In her case the prominence involved 10th, 11th, and 12th dorsal and 1st lumbar vertebræ. She had lost control over bladder and rectum, was markedly paraplegic. She could make some movements with the right leg when lying in bed,

but practically none with the left. Her tactile sensibility was markedly lowered, there being patches of complete anæsthesia on the thigh and calf. She could not stand upright without help, and her deep reflexes were markedly increased.

I had some hopes that in this case, as the disease was so low down, that in spite of the length of time that had elapsed an operation might be productive of benefit, more especially as the cauda equina is known to be very resistant to pressure. My hopes, however, were doomed to disappointment. The operation was performed on the same lines as the first case described, but beyond a very slight improvement in the power of moving the legs while lying in bed, she is practically unrelieved.

This very brief record constitutes my experience in laminectomy for paralegia due to caries, and before bringing my communication to a close I should like to ascertain the views of members of the Section on the following points :—

1. Is it their experience that non-operative treatment relieves many of these cases ?
2. Is actual bony pressure a frequent cause of the paralysis ?
3. Should the operation be undertaken early, or should we continue our present methods of watching and hoping for improvement ?
4. What are the best mechanical methods for exposing the cord ?

RADICAL CURE OF HERNIA IN YOUNG CHILDREN.*

By D. Kennedy, F.R.C.S.I., L.R.C.P.I. ;
Surgeon, Children's Hospital, Dublin.

Although the operation of " radical cure of hernia " seems to have been brought as nearly perfection as possible, and although most surgeons will not treat hernia in adults nowadays otherwise than by operation, yet young children with rupture are almost invariably left for treatment to the tender mercies of the instrument maker. The principal reasons for this appear to me to be, first, a hope that the wearing of a truss will in time effect a cure ; secondly, that the operation for radical cure in children is considered dangerous, and consequently should only be resorted to in very exceptional cases. Both these reasons I hold to be fallacious, and the hope of doing something to dispel that fallacy is my excuse for this communication to you to-night.

With regard to hernia in children being cured by wearing a truss, I am of opinion it is the exception, and not the rule. Although a cure does occasionally result after years, I hold the treatment by operation is far less dangerous and far more surgical than treatment by trusses ; because so long as a child has a necessity for wearing a truss, so long is he exposed to the danger of the hernia becoming strangulated. And, besides this danger of strangulation, there are many and grave objections to a child being condemned to wear a truss for an indefinite period. Principally among these objections are—(1) The truss causes a great deal of irritation about the groin, ending very frequently in troublesome eczema. This irrita-

* Read before the Section of Surgery of the Royal Academy of Medicine in Ireland, on November 14, 1902.

tion makes the child irritable and fretful, and consequently prevents thriving. Secondly, it is impossible to prevent the truss getting sodden with urine and fæces, and it becomes, in consequence, most objectionable and dangerous. Thirdly, the pressure of a truss, strong enough to keep up an ordinary hernia, prevents the muscles from developing in the neighbourhood of the inguinal canal, and consequently the abdominal wall is weakened, and large ruptures are liable to occur later in life. Fourthly, the expense of getting a truss frequently, as will have to be done as the child grows, is sometimes more than poor people can bear. But, the greatest of all objections to a truss in a child is that it is rarely effectual in keeping up a hernia, and then it does more harm than good I have met many such cases with hernia down, and kept down so long as the truss was worn.

These difficulties in connection with a young child wearing a truss are quite apparent to anyone who does much practice with children. And in proof of this I will refer you to the article on hernia in the recent surgery by Cheyne and Burghard. The writer of that article lays down that it is rarely an infant can wear an ordinary truss ; consequently he recommends as a substitute, either a skein of worsted or a flannel bandage, to be changed, of course, aso ften as the child micturates. I think, gentlemen, this may be called grandmotherly surgery, and I am sure would not commend itself to me nor to the mothers of the children. The only solution is early operation, and what I mean by early, is, any time from the fourth month onward. The earlier done, the more perfect the cure, the less liability to recurrence, and the better development will there be of the abdominal muscles.

With regard to the dangers of the operation, they are to a large extent imaginary outside those which exist in the same operation with adults. I have carried out the opera-

tion on at least sixty cases under five years of age, and at least a dozen of these were under twelve months old. I never had a death, never had any sepsis, beyond rarely a stitch abscess; the patients all left hospital between the ninth and fourteenth days, and although I have made many inquiries about the children since operation I know of no case of recurrence. What I have heard invariably was, that the children were much quiter and throve much better after than previous to operation.

I will not weary you with the details of these cases, as repetition becomes monotonous, but will give you some particulars of the younger ones.

Case 1.—T. K., æt. 5 months, came to me from Templemore last March. He was suffering from large double inguinal herniæ and phimosis. Both herniæ were present from birth, and the mother of the child told me a truss was quite ineffectual, though her doctor had procured her several. I admitted him to the private ward in Temple Street Hospital, and the day following operated on the right side. I found a large congenital hernia, with a very thick sac. I reduced the hernia, opened the sac, and then I found lying in the sac a very large vermiform appendix, Afraid kinking might occur if I reduced this appendix, and also afraid that it would hardly have room in the infant's abdomen, I resected it. I then, after dealing with the sac and canal, closed the wound and healing was perfect in eight days. Two days subsequently I operated on the left side, when I found an infantile hernia, the sac within sac variety, and at the same operation I performed circumcision, and ten days afterwards, that is, twenty days from his first operation, I showed the little patient here at the Academy, with his vermiform appendix in a bottle. Since that time he has never looked back.

Case 2.—J. D. came to Temple Street Hospital, suffering from right inguinal hernia and phimosis. The little patient was six weeks old, was emaciated, and the mother told me very irritable. He wore a truss which was not effectual in keeping up the hernia.

The mother told me that she tried several trusses, without any better result. I circumcised the child, and gave instructions to have him back in three months' time. This was done, when I carried out a radical cure, and the child left on the ninth day, being then perfectly well, and under five months old.

The subsequent history of this child is interesting. Six months after operation I was sent for to go and see the child at his home, and was told the rupture had returned. I found a rupture, but on the other side. I again had him admitted to Temple Street Hospital, and I again carried out the radical cure with perfect success. Since that time, about eight months ago, he has had no trouble as far as I know. I was told that after birth the child had both ruptures, but that after a few weeks the left one disappeared, and only appeared again when the child began to make efforts to walk.

Case 3.—Infant, æt. 6 months, sent to the Children's Hospital by Dr. Brew, of Bray. The child suffered from inguinal hernia. and a note was sent by the doctor saying that a truss was ineffect tual. I carried out a radical cure, and the child left hospital on the eleventh day, his wound completely healed.

Case 4.—A girl, æt. 3, suffering from a large umbilical hernia, sent by Dr. Lyons, of Dunlavin, with a note requesting operation to be performed. I carried out the operation, resecting a large flap of skin with the hernial sac, vivified the edges of the opening in the abdominal wall, and united it by sutures of silkworm gut passed through all the layers, including the peritoneum, as after a laparotomy ; the child left hospital in a fortnight perfectly well.

Case 5.—A. D., æt. 16 months, came to the out-patient department of the Children's Hospital ; his mother said he was very ill. He suffered from left inguinal hernia, and was wearing a truss. On examination I found the hernia strangulated and admitted him at once to the hospital. Taxis failing to reduce the hernia, chloroform was administered, and I did herniotomy, at the same time carrying out the radical cure. The child was very ricktey-

and emaciated, and could not be kept quiet after the operation. In consequence hæmorrhage occurred into the scrotum, and twenty four hours afterwards sloughing of the scrotal tissues appeared imminent. I again put him on the operation table, chloroform was again administered, and I removed the testicle, leaving the wound in the scrotum to granulate. His hernia wound healed by first intention; and he subsequently made a perfect recovery. I met two other cases of strangulated hernia, without any gangrene in the bowel being present, on both of which I operated, and both of which made an interrupted recovery. In these three cases of strangulated hernia, the patients wore trusses.

Case 6.—Just three weeks ago, as I was leaving Temple Street Hospital on a Thursday morning, I was asked to see a child in the waiting room. The mother told me the child was ruptured and that he was ill all night; that he was vomiting, seemed to be in great pain, had no motion from the bowels for twelve hours in spite of a dose of castor oil, and passed no urine. On examination I found a very large scrotal hernia on the right side, completely irreducible. The infant looked very ill, and all the evidences of a strangulated hernia were present. I explained to the mother that I would have to administer an anæsthetic to the child, and that, failing a reduction of the hernia, I would operate. She left the hospital to get the consent of her husband, taking the infant with her, and did not return till the following morning. She was then agreeable to anything necessary being done with the child. When I saw him again, he looked dying. The mother told me all the symptoms had persisted during the previous day and night, and was most positive the child had passed no urine for thirty-six hours. I had him brought straight to the operating theatre and operated. I found a congenital hernia, strangulated at the neck of the sac. The bowel was discoloured but not gangrenous, and behind the bowel I found again an enormous vermiform appendix. After reducing the bowel I resected the vermiform appendix, closed the sac and the inguinal canal in the usual manner, and I am happy to tell you the child has made an

excellent recovery. It is only eight months old. In this operation, as in many of the others, I was ably assisted by my friend and colleague Dr. Lewis More O'Ferral. The operation lasted about forty minutes. There was no urine in the bladder at the time of operation.

From these cases you will see that there is little to be apprehended from carrying out the "radical cure" in infants or young children. There are, however, a few points which appear to me to be essential to the success of the operation. First, no hæmorrhage should be allowed to take place; secondly, the operation should be carried out as quickly as possible, consistent with attention to details, and in a thoroughly aseptic manner; and, lastly, the anæsthetic should be properly administered. I especially insist that the child is not allowed to become half conscious at intervals during the operation, as I believe this to be productive of great shock. I have the child fully under the influence the whole time. I invariably use chloroform. Collapse after the operation has been conspicuous by its absence. Pain was not usually present to any great extent, and, if present, was easily relieved by small doses of chloral hydrate.

Contrary, I daresay, to your expectations, and, I may add, to custom, I am not going to describe or discuss any new method of dealing with either the sac or canal, which will in future be known as Kennedy's operation. I carry out as simple a procedure as possible. I never allow my skin incision to go to the scrotum; I ligature and resect the sac, and use no means to fix it in the abdominal wall; I close the canal, after M'Ewen's method, and I do not displace the cord. I invariably circumcise the child. In dealing, however, with congenital hernia I met with an unexpected difficulty in my earlier cases. This was due to the complete union of the elements of the cord with the posterior wall of the hernial sac, making it impossible to separate one from the other. I have

found this condition present in every case of congenital hernia I have operated on, and, in consequence, I have long since given up attempting to isolate the sac from the cord in these cases. This is a condition not usually dwelt on in text books, or by men who have described methods of " radical cure of hernia." It seems to me impossible in these cases to carry out the twisting or invaginations of the sac, which are so elaborately described by some operators, or even to have the sac ligatured in its entirety. I would like to have the opinion of the members of this section of the Academy as to what is best to be done in these cases. I draw down the sac as well as possible after freeing it round the internal abdominal ring. I transfix it, and pass a ligature in front of the cord, as high up as I can get, I then divide the sac transversely above the scrotum, leave the lower part to form a tunica vaginalis, and dissect away all I can of the part lying in the inguinal canal below the ligature. This practically leaves the posterior wall of the sac as it was before.

With regard to the after-treatment I have little to say. I cover the dressing and bandage with protective. There is usually no need to change the dressing oftener than every second or third day. I usually fix the child in a Bryant's splint ; this keeps him quiet, and materially assists the nursing. I remove the stitches on the sixth or eighth day, and, needless to tell you, I do not recommend a truss to be worn for any time whatever.

In conclusion I may say that I did not adopt this method of operating on almost all cases of hernia in children without giving treatment by trusses a fair frial. The results were most disappointing. It was a continuous go from me to the truss maker, and from the truss maker back again to me. On the other hand, the more cases I have operated on, the more pleased I am with the results, and the more determined I am to " throw " trusses, like " physic, to the dogs."

CASE OF CYSTIC TUMOUR OF THE BRAIN OF DOUBTFUL ORIGIN.

By Edward H. Taylor, M.D. (Dub. Univ.) ; F.R.C.S.I. :

Surgeon to Sir Patrick Dun's Hospital; University Examiner in Anatomy, Trin Coll., Dublin; Member of Council, and late Examiner in Surgery, Royal College of Surgeons.

As the case which I am about to relate appears to me to possess many points of high surgical interest, I purpose laying the principal facts relating to it before this Section of the Academy.

Michael Rourke, aged 32, a native of Arklow, was obliged to seek the advice of the local doctor (Dr. P. J. Hamilton), in the month of March of this year, in consequence of progressively increasing weakness in his left leg and arm which rendered him unable to perform his work as a farmer. Up to a year before this, viz., March, 1901, his health had been excellent, but shortly after this date he began to experience failing power in the left leg, this he attributed to the effects of a long walk of some 14 miles, while snow lay deep on the ground, and after which he was quite stiff for some days. His family history is good, and he has never had syphilis. After the loss of power had advanced to his arm it was noticed by his friends and also by himself that his speech was affected, in that it had become " thick " and somewhat indistinct.

On March 25th, 1902, he was admitted to Sir P. Dun's Hospital. He then presented a heavy stupid appearance, with marked lack of facial expression. His eyes appeared prominent, the right more so than the left and slightly suffused ; his face also was flushed, reminding one of a man who had been drinking heavily. His mental state was dull, and his memory much impaired. He had suffered from frequent attacks of vomiting, which left him incapacitated for days at a time. His eyesight, previously good, had grown steadily worse for some months and he

stated that he experienced occasional attacks of blindness, lasting a few seconds, which troubled him greatly. He also suffered from severe frontal headache of a paroxysmal nature. So intense was the pain at times that it nearly drove him frantic and on some few occasions he had to be held down in bed.

The *motor phenomena* which he presented consisted of weakness in the left arm and leg, especially the latter. He walked with a peculiar gait, and dragged his left leg after him. He stated that his left knee frequently gave under him, and that it was with difficulty he kept from falling. There was no evident wasting of the muscles, and no loss of co-ordination in his movements ; the knee jerk was accentuated, and ankle clonus could be elicited on the affected side. The grasp of his left hand was weak, and he was quite unable to work with a fork or spade. The muscles on the left side of the face appeared to contract less powerfully than those on the right, and the tongue, when protruded, deviated slightly to the left side. He had never had a convulsive seizure or fit of any kind.

As regards the *sensory phenomena* sensibility was slightly blunted on the left side, this was especially noticeable on the application of weak stimuli.

On April 8th, patient's eyes was examined by Mr. J. B. Story

$$\text{Right V} < \tfrac{5}{40}$$
$$\text{Left V} < \tfrac{5}{40}$$

Just reads D=2. Pupils react to light and accommodation ; eye movements appear normal. Fields of vision seem normal ; no central colour scotoma ; double optic neuritis of an exaggerated hæmorrhagic type. Discs greatly swollen ; seen with +6 or +7 D.

Diagnosis.—The history of the case, coupled with the facts elicited on examination of the patient, led me to consider the case as probably one of subcortical tumour, situated in the right hemisphere and beneath the motor area. The symptoms upon which I placed most reliance were :—

(1.) Gradual onset of the paralysis from below upwards

beginning in the leg and extending to the arm and face.

(2.) The presence of the classical symptoms of intracranial tension, *i.e.*, optic neuritis with progressively failing sight, frequent and paroxysmal headache, vomiting, incomplete and ill-defined loss of sensatio...

Against the tumour being situated in the region of the cortex were the absence of fits, giddiness or convulsive attacks and no tender spot could be discovered on scalp.

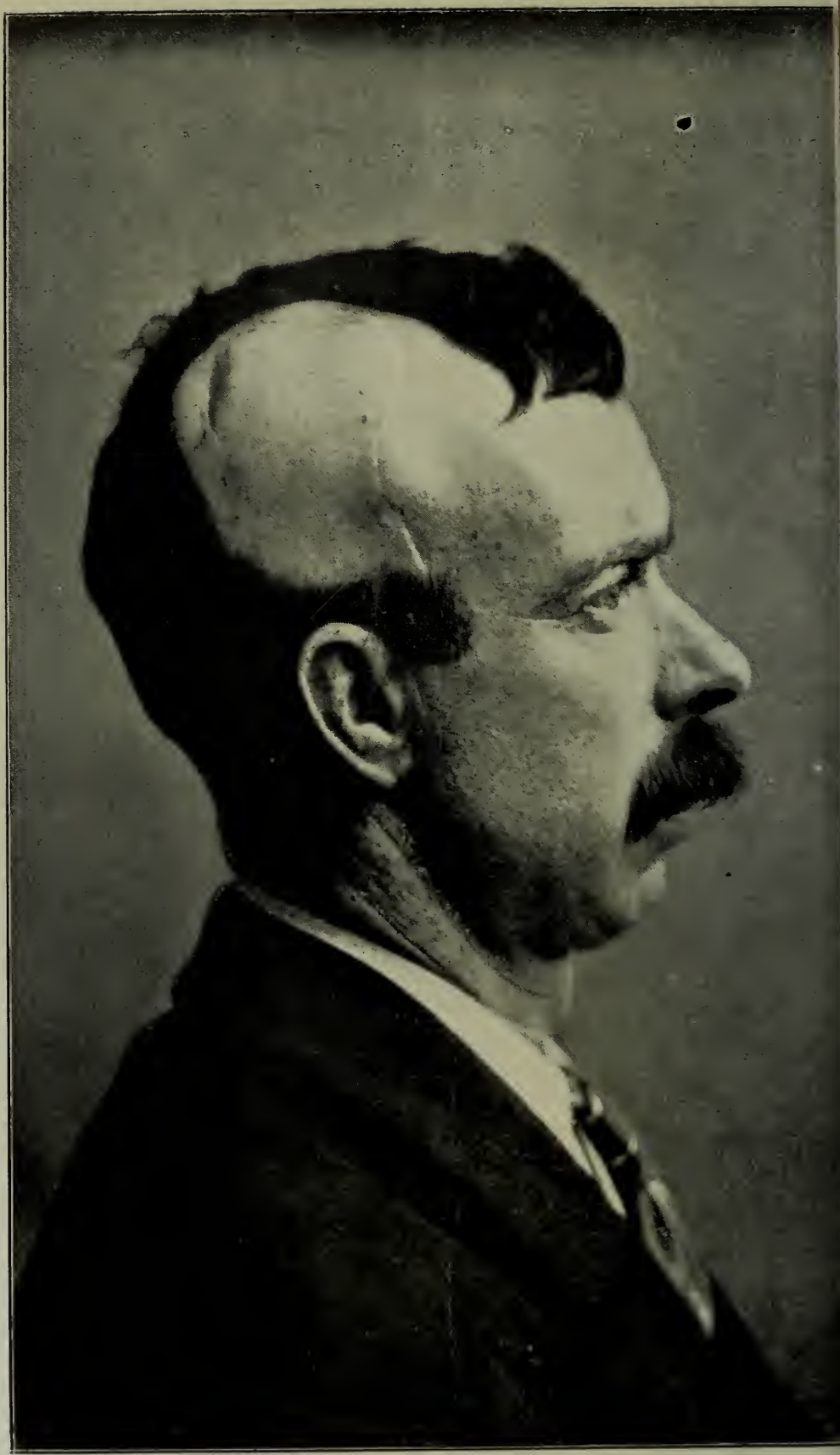
It seemed most unlikely that the symptoms could be caused by a tumour in the region of the internal capsule, in consequence of the slow onset of the paralytic symptoms and the imperfect loss of sensation. With a tumour of any magnitude encroaching upon the internal capsule one would expect the paralysis to extend rapidly and that there would most likely be complete loss of sensation on the paralysed side.

I decided to operate, and the plan I proposed to follow out was to expose freely the greater part of the motor area of the cortex on the right side, to examine this and the subjacent portion of the hemisphere, and if a tumour was present to attempt its removal if possible. On the other hand, if I found removal of the tumour impossible, I thought it very probable that the free opening into the cranial cavity effected by the removal of a large flap of bone and the division of the dura motor would ameliorate the condition of the patient by relieving the intracranial tension.

Operation. The operation was performed on April 26th, 1902. Before operation I mapped out on the surface of the scalp the fissure of Rolando by the method which I devised some two years ago, and was able to confirm in a very striking manner by the help of Dr. Haughton who took a series of skiagrams of the hemisphere in situ, soft lead wire having

been introduced into the main fissure ; these skiagrams were exhibited before the Anatomical Section of the Academy on a previous occasion. I determined to raise a large U-shaped flap, including the scalp and subjacent bone $2\frac{1}{2}'' \times 3''$. The incision was so arranged that two-thirds of the flap lay in front of the Rolandic line, one-third behind. I was influenced in doing this by a paper published some few months previously by Sherrington and Grunbaum on the localisation of the brain cortex. According to these observers the motor centres do not extend behind the Rolandic fissure, they are mainly confined to the ascending frontal convolution in front of this, and to the fissure itself.

The bone beneath the convex margin of the flap was divided obliquely by a Gigli wire saw introduced through small half-inch trephine apertures. Small trephine apertures were also made at the sides, and connected by snipping away small pieces of bone with cutting forceps. Having completed the division of the bone to the full extent of the division in the scalp, I gently separated it by a blunt spatula from the subjacent dura mater, and turned it downwards together with a portion of the scalp which adhered to it, over the right ear. The dura mater, so far as it was exposed, appeared of a grey dull tint, extremely tense and did not pulsate. I next divided it about a quarter inch from the cut margin of the bone and turned the detached part down. The brain immediately protruded into the opening in an alarming manner, so much so that I feared a hernia cerebri would certainly occur. On passing my finger over the brain surface I could not detect any area of induration or any evidence of a solid tumour in close proximity to the surface, but I had little difficulty in ascertaining the presence of fluctuation, the sensation of a fluid collection quite close to the surface being very distinct. Taking a sterilized exploring needle I introduced it through the cortex at the centre



Dr. Edward H. Taylor's Case of Cystic Tumour of the Brain.

(This photograph, which was taken some months after the operation, shows the position and extent of the osteoplastic flap which was raised in exposing

of the exposed area, and almost immediately I perceived it had entered a cavity as all sense of resistance to its advance suddenly disappeared. On withdrawing the piston the barrel of the syringe became filled with a clear, watery, straw coloured serum. I now incised the cortex vertically for almost half an inch, and simultaneously a free gush of serum took place, the surface of the brain receded, and in a few seconds the exposed area of the cortex, which had protruded so prominently, lay at the bottom of a cup-shaped depression on the surface of the hemisphere, the peripheral limits of which extended beyond those of the opening in the skull. Several meningeal vessels now commenced to bleed and gave me considerable trouble. I decided to drain the cavity and introduced into the cyst a piece of soft rubber tubing, quarter inch in diameter. As I gently moved it about in the cavity it was easy to see that the latter was of considerable dimensions. The end of the tube passed inwards close to the middle line, and forwards into the frontal lobe. I did not enlarge the opening in the brain sufficiently to permit of an inspection of the interior of the cyst, nor did I introduce my finger for the purpose of exploration. The dura was stitched back into place and the end of the rubber tube brought out through one of the small trephine apertures and the posterior part of the scalp wound.

The conclusion of the operation, however, was rendered somewhat tedious by the difficulty I experienced in controlling meningeal hæmorrhage. The anterior branch of the middle meningeal artery was partially divided by the trephine as it lay in a deep groove in the bone, and in order to secure it I had to freely snip away the surrounding bone and follow the vessel towards the base of the skull. In the region of the superior longitudinal sinus there was also free venous oozing from the outer surface of the dura, and this necessitated the introduction of a fairly large plug of iodoform

gauze, the free end of which I brought out through an enlarged trephine aperture.

Finally, the flap of scalp and bone which fitted like a lid over the exposed surface was replaced, and the wound closed in the greater part of its extent by silkworm gut sutures.

The patient bore the operation well, and was not much collapsed. There was a free discharge of serum from the tube which continued for some days subsequently. On the 30th April very little serum appeared to have come through, and accordingly I withdrew the tube and also the gauze plug.

The day following the operation I found the patient had lost all use of his left arm, in fact it was absolutely powerless, otherwise his condition was good and the sense of fulness and weight in his head had disappeared.

Dr. Story examined the patient's eyes again on 5th May. The note he made then reads as follows :—" Optic neuritis, swoollen papillae, fuzzy margins ; tortuosity of the vessels and hæmorrhages well marked in both eyes. Cannot positively assert that it is subsiding." The note made by the Surgical Dresser, May 12th, reads :—" Patient is able to walk a little. He is still unable to raise his left arm. The flap appears somewhat raised above the general level of the surrounding scalp."

On May 30th, almost five weeks after the operation, the patient returned to his home in the country, and the following note was made the same day :—" Patient walks well and uses the left leg as well as the right, all dragging of the foot and stumbling have disappeared ; some power has returned to the upper arm. He can raise the arm at the shoulder and flex the elbow with comparative ease. The wrist can only be flexed with great difficulty and the fingers not at all. His facial expression has much improved, and the eyeballs are less prominent. His visual power is decidedly better, he can now read a letter, whereas before the operation he was unable

to make out the larger headings of a newspaper. He has not had any headache nor has he vomited since the operation. The projection of the flap is appreciably less, below and in front however corresponding to the area of bone removed in order to secure the middle meningeal artery, the scalp is bulging, it feels quite soft to the touch and pulsates."

At my request the patient came up to town on Friday Nov. 28th, to let me see what progress he had made. He told me he commenced to work a few days after his return, *i.e.*, the first week in June. By degrees he has regained the use of the left arm and hand, the limb being now very nearly as strong as the right. He has not had any headache since the operation, nor vomiting. His sight has improved, but has not regained its original power. Mr. Story kindly re-examined his eyes and sent me the following report :— "Nov. 28. Right V—five fingers at 5 metres ; left V—$_{\frac{4}{60}}$ Both optic nerves beautiful examples of post-neuritic atrophy with whitish papillæ, fuzzy margins to the discs and peri-vascular thickenings. Both seen with +5D erect image. Right disc more atrophic in aspect than left. Right disc has white plagues in the macula (as in Bright's disease). Do not see these in the left."

I have elicited an interesting fact from the patient concerning the progress of events since he left hospital. On August 14th as he was engaged in the act of weeding he was seized without warning by a lightness in his head and was unable to speak, he felt his eyes turn upwards at the same time, but he did not lose consciousness. Since then he has had other slight attacks, which began by his left forearm and fingers becoming tightly flexed, the "forearm working." These attacks are of momentary duration and are unaccompanied by pain or loss of consciousness. He is now able to attend to his farm, and was most anxious to return home as the greater part of the work of the place devolves upon him.

He finds his limbs becoming progressively stronger, the left arm and hand especially showing appreciable increase of power even recently. He never stumbles now in walking, and tells me that in all respects he is as well able for his work as ever he was.

The points which appear to me of special interest in this case are :—

1. The presence of the ordinary signs of increased intracranial tension, coupled with localising symptoms which rendered it most likely that the case was one of tumour within the motor area, and that it was subcortical.

2. The complete paralysis of the left arm which succeeded the operation, the paralysis having been partial for sometime previous to this.

3. The occasional transitory seizures which the patient has experienced in the course of the past few months, and which are suggestive of Jacksonian epilepsy. I am inclined to regard their occurrence as due to cicatricial charges within the cyst cavity and in the track of the drainage tube, the latter having evidently passed through portion of the cortical centre for the arm. Acting upon the advice of Drs. O'Carroll and Parsons, who had an opportunity recently of examining the patient at a meeting of the Biological Club, I have put him upon fairly larger doses of potassium bromide.

4. The obscure nature of the tumour. Considerable doubt has existed in my mind as to the origin of this cyst. I rather incline to the belief that it had its origin in the lateral ventricle, the ventricular fluid being unable to escape probably in consequence of its cavity being partially obstructed by a tumour, possibly a glioma, projecting into it from the adjoining portion of the hemisphere. On the other hand it is quite possible that the case was one of a cystic glioma.

5. The steadily progressive improvement in the patient's

condition, as shown by the restoration of power in his limbs, the cessation of vomiting, the improvement in sight, and the entire freedom from headache since the operation.

Note.—While spending his summer holiday in the country my Resident Pupil—Mr. Hallowes—took the opportunity of visiting the patient and ascertaining his condition. He is at present in excellent health, and is at work daily upon his farm. Occasionally—viz., about once every three or four weeks—there is a sudden and involuntary movement of both eyeballs upwards to the left. It is of momentary duration, and is not accompanied by any sensory phenomena. He never loses consciousness nor is there any tendency on these occasions to spasm of the fingers or forearm on the left side. (July. 1903.)

TWO UNUSUAL CASES OF NEPHRECTOMY,*

By R. Charles B. Maunsell, M.B., B.Ch. (Univ. Dubl.); F.R.C.S.I. ;

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The operation of nephrectomy has been so long before the profession, and the subject has become so vast, that I have neither the inclination nor the experience to deal with more than a few points this evening.

The two cases which I bring under your notice in this communication have been chosen as they occurred in my hospital practise at about the same time, and illustrate fairly well two very different forms of nephrectomy.

The first case is undoubtedley unusual and worthy of record from this point of view alone. The second I can hardly claim to be very unusual, but I wish to make a few remarks about it, so that I may elicit the practical experience of my more senior brethren.

Case 1.—Bridget L., æt. 16 months, was sent to me on June 5th, 1901, by Dr. Lloyd, who was at that time Assistant Master of the Rotunda Hospital. The mother, who brought the child, is a healthy-looking woman, and states that the child's father is also healthy. The patient is the youngest of a family of four, all of whom are alive. At birth and for three months subsequently nothing abnormal was noticed, but then the mother, when bathing the child, felt a lump like an egg on the right side of the abdomen. The child remained in good health, and the lump did not increase in size for seven months, but then grew rapidly and continuously up to the date on which I saw her.

* Read before the Section of Surgery of the Royal Academy of Medicine in Ireland, on December 12, 1902.

Nothing abnormal was ever noticed in the urine or motions, and the only other fact of importance was, that as the abdomen increased in size, the limbs and face showed signs of wasting.

On examination, the child seemed rather puny and weak, and would not lie down, but preferred to sit up even when dozing asleep; there were no signs of rickets or syphilis, and the heart and lungs seemed normal; the urine was passed into a napkin, but a small specimen which was obtained showed neither albumen nor casts; the abdomen was very much distended both anteroposteriorly and laterally, the subcostal angle was lifted up and opened out; the right loin bulged more than the left, and the right lumbar hollow was obliterated when viewed from behind.

On percussion the only resonant area was over the left hypochondrium and left lumbar region.

On palpation, a firm but not very hard tumour was felt, practically filling the whole abdomen; it seemed to be triboled, the largest portion passing beneath the ribs and liver, a somewhat smaller portion passing down filling the false and dipping into the true pelvis, the third portion bulging in the right lumbar region, the abdominal walls were tense but movable over the tumour.

The diagnosis rested between ovarian tumour, sarcoma of the kidney or congenital cystic kindey, and having considered the various signs I gave the last as the diagnosis, and recommended abdominal exploration and removal if possible.

The operation was performed on June 13th, 1901. The thorax and limbs having been carefully wrapper up in wool, ether was administered, and the child placed on her back upon the operating table. An incision was made commencing opposite the tenth intercostal space, extending obliquely downwards and forwards to a point near the middle line below the umbilicus, the fibres of the extending oblique were separated as much as possible and the internal oblique and transversalis cut, the sheath of the rectus was opened by cutting through the linea semilunaris, and its anterior and posterior layers cut across with a scissors without injury to the muscle, which then could easily be drawn to the

middle line. The tumour presented a bluish colour in parts, alternating with more yellowish white, it was extraperitoneal except on its anterior and left aspects.

The peritoneal cavity was then opened at the innermost part of the wound, and the left kidney palpated and found to be apparently normal. The upper portion of the tumour was next rapidly separated from its adhesions, and withdrawn from the wound, thus exposing the renal vessels which were small and easily secured by fine silk ligatures and divided. the tumour and ureter were then further drawn outwards, the ureter ligatured and divide at the brim of the pelvis and the lower lobe of the growth drawn upwards, thus completing the removal. Some vessels which had been clipped were ligatured, the peritoneum and sheath of the rectus repaired with fine silk, and the rest of the incision through the muscles united by a continued buried silk suture and the skin closed by fishing gut without drainage. Before removal of the tumour the incision seemed about 22 cms. long, but after removal shrank to 10 c.ms. After operation the child weighed 17½ lbs., and the tumour weighed 3 lbs. 2 oz.

Convalescence was absolutely uneventful, and the child was sent home on July 2nd—twenty days after operation ; since then she has grown to be a fine little girl, apparently normal, and when seen during the latter part of August, 1902, the left kidney could not be palpated, and was evidently doing its double work satisfactorily.

There are just a few remarks I would like to make about this case before proceeding to the next one.

Ether was chosen for anæsthesia, as the shock from its administration is slight, and also I wished to be able to devote my undivided attention to the operation. It is a fairly general idea that children take ether badly, and take chloroform well, but I can, after a considerable experience in performing both large and small operations upon very young children, emphatically state that children take ether well, become unconscious as soon or sooner than with chloroform,

recover much more rapidly from its effects, and so far I have not had any pulmonary complications following its administration.

The next point of importance is to wrap a small patient like this in wool and have the theatre extra warm. With regard to the actual operation on young children, the important points are : accurate hæmostasis, absolute asepsis, and rapidity. In the foregoing operation the total amount of blood lost did not exceed two drachms, and the lotion used for cleansing the wound, &c., was simple normal saline solution.

Surgery has now advanced so far that the age of a patient is no longer of consequence, the only objection that can be raised against operations upon infants is on the score of expense, as these little patients require the undivided attention of a nurse both by day and by night.

The choice of an incision is not always easy, and it is of very great importance in nephrectomy, and other kidney operations.

We may discard the middle line as unsuitable in any case. Langebuch's incision has been out-classed, and, in the present case, at any rate, would have made the operation very difficult, besides destroying the nerve supply of a large portion of the rectus.

Langebuch's, with a cross cut to the loin, would have given very ready access, but to my mind is unsurgical, and needlessly destructive. The combined methods of Morris and Thornton do not appeal to me. The lumbar incision and its various modifications are out of the question, because the position of the patient is faulty, the wound is deep and needlessly severe, and although one of the modifications gives plenty of room below, the space above is cramped, and it might also be necessary to make a separate incision for abdominal exploration.

A very good incision for removing large tumours is that of Bergmann as advocated by Kocher, viz., an oblique incision commencing above at the tip of the tenth or eleventh rib, and sloping down to the centre of Poupart's ligament, or a modification of this, which is a most useful incision for many kidney operations, and which can be either extra or intraperitoneal according to the class of case. This incision commences above at either the tenth or eleventh intercostal space or immediately below the tip of the last rib, and slopes forwards and downwards in the direction of the ext. oblique fibres, and reaches the linea semilunaris or middle line if necessary at a varying distance below the umbilicus, if it is necessary to reach the middle line, the rectus should not be cut, but the linea semilunaris should be snipped through, and then the anterior and posterior layers of the sheath cut with scissors and the muscle drawn aside. This incision gives very free access to the upper part of the kidney as well as to the whole ureter. The special method of dealing with the sheath of the rectus was used by me first some three years ago when exploring the upper abdomen, and I have used it several times since to give more room in the removal of the appendix by the muscle-splitting method. If the kidney is only to be explored or fixed the whole procedure may be carried out by the muscle-splitting system as I have proved to my own satisfaction on three cases.

Case 2.—Mrs. S., æt. 40 years, had her uterus removed by vaginal hysterectomy for carcinoma in July, 1900.

The operation was very difficult, and some days afterwards portion of the urine was noticed coming per vaginam evidently from an injured ureter. It was considered better not to open the abdomen, to perform an implantation operation, as the pelvis was obviously septic. She progressed favourably except for the fistula hand was discrged on September 29th. She was admitted again in December, and I examined her by Kelly's method, and could

make out that the left ureter was the one involved, but as there was a suspicion of recurrence of the carcinoma, no operation was advised, and she was not again seen by me until June, 1901, when I found that she had been re-admitted under one of my medical colleagues, and I was asked to see her on account of severe pain in her left side with repeated rigours, purulent sputum and signs of consolidation at the base of the left lung, and a swelling over the region of the left kidney; the vaginal fistula had been closed for some time.

The diagnosis made was pyonephrosis and subphrenic abscess, and as the pain was severe and the temperature 104° F., immediate operation was undertaken. Per vaginam recurrent cancer could be felt in the pelvis.

Chloroform having been administered the usual lumbar incision was made, and the perirenal tissues found brawny and inflamed, and the convex border of the kidney bulged tensely in the bottom of the wound. A bistouri was inserted into the tense gland and a large quantity of pus was evacuated. A finger was then inserted and it was found that the cavity in the kidney communicated freely with a large abscess cavity behind the spleen. The question now arose whether I should rest satisfied with nephrotomy. In favor of nephrotomy was the likelihood of the other ureter becoming obstructed by cancer or the kidney infected ; on the other hand the operation had been undertaken to give comfort and not to prolong life except in comparative comfort, so we considered a urinary fistula in the loin contra-indicated besides there was a fear that the subphrenic abscess would not drain freely unless the kidney were removed.

Two other questions then arose : first, in an acutely septic area such as was here present, ought the kidney to be removed by the usual method running the risk of cellulitis or injury of the peritoneum. Secondly, could ligatures be trusted to hold on a pedicle in face of such sepsis. Both these points were decided in the negative and the kidney was removed by the sub-capsular method of Ollier. This was used as a method of choice, as advocated by Tuffier, and not because it was impossible to do otherwise, which

would seem to be the only indication recognised by most British writers. The kidney capsule was then drawn up and sutured around to the sub-cutaneous tissues of the wound, except at the upper portion where a free opening was left into the subphrenic space. This method of dealing with the capsule made a neat shallow cup in the loin, with the pedicle safely within reach of finger pressure at the bottom, and thus secondary hæmorrhage need not cause alarm. The capsule was plugged every few days with iodoform gauze and the cavity rapidly and soundly healed. The patient lived in comparative comfort for over four months, and then died from generalization of the pelvic carcinoma, but without further urinary symptoms.

Post-mortem.—The left ureter was found completely cut across in the broad ligament and closed by cicatricial tissue, two silk ligatures were found imbedded in the scar of the nephrectomy pedicle, the spleen was adherent behind where the abscess cavity had been and nearly all the organs were infiltrated with carcinoma.

I bring this case forward as a means of making a suggestion that Ollier's operation might be the operation of choice in acutely septic cases, and not be relegated, as it seems to be at present to the last line of defence.

Anatomical and Pathological Description of the Kidney Tumour from Case 1.

The parts removed consist of 9 c.ms. ($3\frac{1}{2}$ inches) of ureter leading to a kindey the lower one-third of which appears normal, but the hilum and sinus are greatly distended above this by the emergence of a bunch of cysts, the upper two-thirds of the kidney seems to be dilated so as to form portion of a huge conglomerate cystic tumour. The mass is roughly trilobed, the upper and largest lobe is continuous with the kidney surface, is smooth and round, and about the size of a large fœtal head. From the anterior and lower surface of this springs another lobe, of about the same size but irregular

in outline, which runs downwards on the antero-internal aspect of the kidney and behind this is the third and smallest lobe which is composed of the normal portion of the kidney. The ureter enters the hilium at the junction of the second and third lobes of the tumour. The whole mass weighs 3 lbs. 2 ozs. (normal weight of kidney for a child of this age is to 2½ oz.), is 56 c.m.'s (22 inches) in longitudinal circumference and 41 c.ms. (16 inches) in transverse circumference.

On cutting the tumour open longitudinally we find that the pelvis of the ureter is large but not dilated, the lower one-third of the sinus of the kidney is somewhat dilated but contains a normal calyx enclosing a fairly normal looking papilla, a second calyx, 7 c.ms. long, runs to a small atrophied piece of kidney situated at the junction of the two large lobes and a third calyx, 5 c.ms. long, runs to an atrophied papilla at the upper pole of the kidney where it merges into the large cyst wall. The whole tumour is a congenies of cysts of all sizes, many of which open into one another.

Dr. H. C. Earl reports that the fluid in the cysts was of a light straw colour, was not albuminous, and contained a fair amount of urea. The lower one-third of the kidney on section appears normal except for very slight excess of cellular elements in the intertubular tissue; the middle one-third shows advanced sclerotic changes with commencing cyst formation in the tubes of all classes and in the capsules of Bowman, the arteries are not markedly thickened. The cysts in the tumour portion on section are lined with a very low columnar epithelium which is evidently flattened out and tends to flake off, the walls are composed of fibrous tissue and do not show any kidney substance between them. There are no intracystic papillary growths and no signs of activity of the epithelial elements. This case, therefore, seems to me to support the theory that these congenital cystic kidneys arise from fœtal papillitis and is interesting in that not only

was it limited to one kidney, which is uncommon, but it was limited to a portion of one kidney, which, as far as I know, is exceedingly rare.

In conclusion, I would like to express my indebtedness to Dr. de Rosario and Mr. Pringle for the notes of these two cases, and also for their assistance during the treatment of the patients.

THE SURGERY OF THE GALL BLADDER.

By John S. McArdle, F.R.C.S., F.R.U.I.;

Senior Surgeon St. Vincent's Hospital; Professor of Surgery C.U.I.; Examiner in Surgery Royal University.

I would not dare to occupy the time of this Academy by the recital of ordinary cases of gall bladder trouble, but in my study of the secondary affections arising in the course of disease of the gall bladder, and the various ducts with which it is connected, I have come across cases which have so interested me that I thought a brief recital of the salient points in some of them might not be unworthy of your attention. The subject has been so exhaustively dealt with, that I hope you will forgive me if my remarks somewhat overlap the pages of even ancient history on this subject.

Case 1.—Mrs. H, aged 54, was sent to me by Dr. Frost, of Newmarket on Fergus. She had had several attacks of colic, and jaundice had been fairly constant for some months. Of late jaundice was permanent, and instead of colicky pains she had persistent pain and tenderness under the right costal arch, she had lost flesh, became haggard looking, and looked the picture of misery when she arrived in hospital. Her pulse was quite small and compressible, and her temperature sub-normal. For some time vomiting had been persistent and distressing.

I opened the abdomen in this case in the semi-lunar line, but owing to the extent of adhesions I was obliged to make an incision at right angles to the centre of this line cutting the rectus, a great deal of time was spent in freeing the great omentum which was massed round the gall bladder and along the edge of the liver. This done I opened the gall bladder and gave exit to the stones here shown, and with them a great amount

of mucopus, and there was now a profuse discharge of bile; on examining the common duct I found fixed in it a rather large stone, and passing the left index finger into the foramen of Windslow I brought the stone towards the wound and passed four sutures over its site in the duct as shown in the accompanying drawing, and hooking up the loops while the ends were in a clip forceps, I cut the duct directly on the stone which was readily turned out with the scoop and setting the loops free and drawing upon the clip forceps, immediately closed the wound in the bile duct. The tying down of the sutures was a matter of only a few moments. Recovery in this case was slow but complete.

In this case the patient was so weak that any prolongation of the operation would not be justifiable, and so I was obliged to hasten the procedure by cutting the bile duct directly on the stone; you can easily understand that suturing before opening the duct was easily and rapidly carried out, as there was no flow of bile to impede the application of the sutures, and once the stone was removed traction on the sutures prevented any further discharge of bile into the abdominal cavity. I consider this a marked advance on the procedure advocated by Halsted, who opens the duct, then inserts a mallet-shaped support to enable him to properly pass the sutures required for closure.

Case 2.—Rev. M. F., consulted me about a general wasting accompanied by weakness brought on by the least exertion. He complained of mental exhaustion after the slightest effort. He always had a great inclination to fall asleep after food, and he suffered much from headache. He had intercostal pain chiefly in the right side and referred to the sixth, seventh and eighth spaces. He had also pain between his shoulders. He had intermitting attacks of vomiting occasionally getting up some blood. He also suffered from an irritative cough. For years he had been under treatment, but at no time did he obtain any marked relief.

I examined him carefully, could find no pulmonary or cardiac lesion. The liver was somewhat enlarged, and there was a tender and prominent spot below the right costal arch about on a line with the ninth cartilage. I opened in this region and a rounded mass and like the gall bladder protruded into the wound. On examination I found it to be a tumour at the tip of the gall bladder the size of a walnut. The liver was very dark and covered all over with green yellowish lines giving a tesselated pavement appearance. I opened the gall bladder and removed a considerable amount of dark semi-gelatinous fluid. After flushing I resected the tumour and fixed the gall bladder to the skin. For a long time this patient had a considerable amount of pain and a very copious flow of dark bile from the wound, gradually this diminished, and I was enabled to close the gall bladder, when all the distressing symptoms above referred to disappeared.

It would seem that in this case the patient was treated for all kinds of gastric disturbances, and that for years his life was rendered miserable by symptoms varying much in character, sometimes febrile, sometimes pulmonary, occasionally intestinal, and not unfrequently mental. The removal of the adenoma, which I now exhibit, relieved him of all this distress.

Case 3.—Dr. R. was brought under my care by Dr. Fagan. For years he had suffered from intense epigastric pain, had frequent attacks of vomiting, when his distress was terrible. Some months before I saw him rapid emaciation commenced. He had been doctor-like under all kinds of treatment. The contents of his stomach was examined, and the awful word cancer had been applied to his condition. I found on examination a greatly dilated stomach and enlarged liver and prominent gall bladder, and as the history of the case pointed to extensive adhesions in the neighbourhood of the pylorus, I made a rather long incision in the right semilunar line, double ligatured and cut great bands joining the colon to the liver and gall bladder, thus exposing the gall bladder for section. On opening this organ I gave exit to a

great quantity of bile and mucopus, and I removed after some difficulty the stones I now exhibit.

In this case owing to the unhealthy condition of the gall bladder I was obliged to bring the peritoneum freed from its connections down to meet the gall bladder wall. For some days we had great trouble with this patient, but by washing out the stomach frequently we were able to keep him in a state of comparative comfort. He made satisfactory progress. I met him at an operation a few days ago looking the picture of health and having gained three stone in weight since the operation.

It will be seen by the history of this case that the patient was treated for ulceration of the stomach, gastric dilation, and ultimately he was given over as a hopeless case of cancer of the pylorus, when my worthy assistant, Dr. Fagan, correctly diagnosed his case. That the result was not as bad as usually attends cancer is entirely due to Dr. Fagan's action in the matter ; and it should be a warning to some and an encouragement to others that all cases with symptoms such as he presented are not necessarily fatal.

Case 4.—Mrs. M., aged 32, complained for many years of epigastric pain, vomiting especially in the morning, and general weakness. As her distress was greatest during the menstrual periods it was thought that all her trouble was of uterine origin, first one ovary, then another was removed, then curetting was done, later two laparotomies for the relief of adhesions. Each time she was told that she was perfectly well, but her husband, himself a physician in extensive practice, seeing her gradually get thinner and thinner, asked me to examine her.

On hearing the history of her illness I concluded that she had a blocking of the gall ducts. I opened the gall bladder and removed the peculiar gray stones which I now exhibit, and with them a considerable amount of mucoid material but no bile, and searching the cystic duct I found a large stone blocking it. This was easily extruded by digital compression, and soon after bile

appeared in the wound. In this case I fixed the gall bladder to the middle stratum in the abdominal wall to allow thorough drainage. This patient made an uninterrupted recovery, and is now enjoying perfect health. You will see by the history of this case that a great deal of medical and gynæcological talent was exercised in seeking a remedy for a very distressing trouble, the subsequent history of which proved that affections of the gall bladder often play an important part in the production of symptoms referable to other regions than the right sub-costal area.

Case 5.—Mrs. S. was brought under my notice by her brother-in-law, a doctor in practice in Dublin. I was called to her late at night to a city hotel, where I found her in an epileptic fit. She was in a most pitiable condition. I got a history of frequent sickness, occasional vomiting, and almost constant epigastric pain. On examination I found she had an enlarged liver, and pressure below the right costal arch increased the violence of the spasms. Next morning I had her removed to the Private Hospital, Holles Street; here I opened the gall bladder which contained a tenacious tarry substance, imbedded in which I found the very curious stones I now exhibit. I washed out the gall bladder, and as it was very long, I passed into it a long thick rubber tube which I fixed to the abdominal wall by two silkworm gut sutures. About one o'clock I had a telephone message to say this lady was dying, and on arriving at the hospital I found her in a seizure somewhat like what I had witnessed the previous night. She was cold and almost pulseless. I immediately withdrew the tube and replaced it by a strip of gauze, almost at once the whole aspect of the patient changed, and soon large beads of perspiration appeared, her face became flushed, and within half an hour she was conscious and expressed herself as much relieved. From this time her progress towards recovery was steady, and since she has not had a single attack such as I have described.

Case 6.—Mrs. L., aged 50, was brought to me by Dr. J. J. Murphy, complaining of great weakness, headache and rather frequent vomiting, and epigastric pain. She had emaciated very

much, and on examination I found the right rectus muscle rigid, the stomach greatly dilated, and she complained of a fulness and tenderness under the right costal arch.

In this case I made an oblique sub-costal incision after Billroth's fashion, so as to have control of the entire pyloric area. I here found a broad band crossing the beginning of the duodenum, the upper portion of which, as well as the stomach, was greatly distended, the stomach particularly, being covered with large tortuous veins. I double ligatured and cut the band, thoroughly freeing the colon and the pylorus. I next opened the gall bladder giving exit to a great quantity of dark inspisated bile, and after flushing I fixed the gall bladder to the skin so as to allow for prolonged drainage. Although very low, this patient made an uninterrupted recovery.

Most of the nerve specialists in Europe had treated this lady for nerve trouble of one kind or another, she had been confined to bed for months, had wasted away, and no matter what nourishment she took it was of no avail ; all kinds of opinions were expressed as to the cause of this emaciation, and when I saw her, the dread word " cancer " had been mentioned as the only explanation of her rapidly failing health. The emptying of an abscess of the gall bladder, the breaking down of surrounding adhesions and the freeing of the bile ducts by injection led to an improvement which has left this lady in perfect health for the past five years.

Case 7.—Mr. S., aged 52, came under my care with a history of persistent epigastric pain, he was easily fatigued, and the least exertion. and sometimes the pain, brought on excessive perspiration. The pain was referred to the gall bladder area, to the right shoulder blade and to the centre of the spine between the shoulders. He had been under treatment for gastric ulcer, dyspepsia, &c., and of late serious statements were made as to the possibility of malignant disease. I opened the abdomen in the right semilunar line, found the gall bladder very tense and greatly enlarged, and its walls so friable that every type of forceps would cut through

with the slightest pressure. Under these circumstances I was obliged to incise the gall bladder while deep down in the abdomen to prevent soiling of the peritoneum, I kept a douche playing from below the line of incision in the gall bladder, so as to float out the contents after incision. The stones which I now exhibit accounted for the intensity of the pain. Recovery in this case was rapid, although the right side pain lingered for some time.

This case had been given over as a hopeless case of cancer of the pylorus, and some medical friend suggested that he might have gall stones. He consulted Mayo Robson, who diagnosed his case accurately, and offered to carry out the necessary operation ; being one of the few who still believe in Irish surgery, he elected to take his chance in Dublin, and so I had an opportunity for a second time of removing mulberry stones from the gall bladder. He has made a complete recovery, although for a considerable time there was a profuse discharge from a biliary fistula.

Case 8.—Dr. C. L. came under my care after having severe attacks of renal colic for over two years. Prior to these attacks he had suffered from janudice, and for some months previous to the attacks which led him to consult me, jaundice had been persistent. Although he had got thin and worn his spirits were good, he had had a fair pulse and good appetite. The last attack of colic he had occurred four days previous to my examination, and was of such a severe nature that he was obliged to go to bed immediately. He had been out in the morning, on his return home he felt giddy, then got a sickening feel, and later intense pain in the right side of the abdomen, this pain lasted only a short time, but he fell on the floor in a state of utter collapse, with cold clammy skin, almost imperceptible pulse, and in a condition bordering on unconsciousness. He rallied after a few hours a little, but seemed to fall away again, and when I first saw him although the jaundice had disappeared he had all the appearance of one suffering from cholæmia. I elicited the fact that no bile had passed away in the motions for months, but on the fourth day after this attack

the motions were well stained with bile. Believing that this patient had perforation of the gall bladder and that bile was pouring into the peritoneum, I opened the abdomen by a very small incision, so as to allow free discharge of bile. This I did without an anæsthetic, as the patient was almost moribund. The result was highly satisfactory, a copious discharge of bile took place, the symptoms gradually subsided, and drainage being complete, on the eighth day the small wound was allowed to heal. Since that time jaundice has quite disappeared, and the patient is in perfect health.

Case 9.—In February, 1902, I saw Mrs. W., aged 65, in consultation with Dr. Burke-Savage. She had complained for many years of general sickness, occasional attacks of vomiting, and prior to examination by Dr. Savage she was supposed to have ague owing to the recurrence of very exhausting rigours followed by profuse perspirations. Dr. Savage gave me the history of the case, and explained that the rigours were the result of septic absorption from an infected gall bladder, and called my attention to a hard swelling below the right costal arch, and from this crossing upper part of the epigastrum the patient complained of great tenderness, and during the acute troubles she had intense pain in this area. she had broken down in health, emaciation had become marked, she had a small weak pulse, and all the appearance of complete devitalization. In the hope of affording her some relief I opened the right hypochondrum, and found a great mass of thickened and inflamed omentum covering the gall bladder and adhering to the liver substance. After section and removal of this, I plugged all round with muslin sponges. The gall bladder wall was so friable that portions of it came away in the forceps at every attempt to bring it into the wound, I was obliged therefore to open it and allow the stage of a great amount of ochre-coloured fluid, then some broken pieces of gall stones, and ultimately masses as large as a small egg were removed with a scoop ; these had ulcerated through the gall bladder wall, and were lying in abscess cavities in the under surface of the liver and on the

hepatic flexure of the colon. After thorough irrigation I closed the peritoneum round the edge of the cavity from which the bile was now beginning to flow, I laid in a large drainage tube and plugged the wound with iodoform gauze. She rallied soon after the operation but emaciation still continued, and, notwithstanding all our efforts, she died of exhaustion on the eighth day.

There can be no doubt that early operation would have saved this patient, that the attacks like ague occurred during the formation of abscess in the line where the stones had eroded, and it is likely that the emaciation so marked before operation was the outcome of pressure on the under surface of the liver and lesser omentum ; the relief of this pressure was not sufficient to allow a restoration of these parts in good time.

In this case the great omentum had become massed round the gall bladder, adhering to the under surface of the liver and the front of the pylorus leading to the dilitation of the stomach, then to the distension of the cœcum, and ultimately to the marked enlargement of the small intestines, all of which were much hypertrophied.

This is only one of many cases of this kind which I hope to bring under this Section at a later date. My feeling is that such cases are fairly numerous, and that when attacks of cholecystitis have passed off under treatment, there frequently remain such bands as I have described to prolong the patient's trouble, and lead to the belief that malignant disease is present. It is chiefly with the object of directing attention to such cases that I have brought the matter under the notice of the Surgical Section of the Academy.

THE OPERATIVE TREATMENT OF ENLARGED PROSTATE.*

By Sir William Thomson, C.B.;

Surgeon to the Richmond Hospital, Dublin; Hon. Surgeon to H.M. the King

Removal of the prostate, or of portions of it, because of obstruction to urination, is a procedure which, in this country at all events, has the attractiveness of novelty. I think I may say that there are few in Dublin who have seen the operation performed, and perhaps still fewer who have themselves done it. Prostatic obstruction, with all its attendant miseries and its tendency to cause the death of the patient, has until recently been viewed as a condition impossible to cure, and the surgeon's ingenuity has been directed to palliating the victim's distress by use of the catheter and the administration of soothing drugs.

We have almost vainly hoped for a method comparatively safe and rapid of removing for good and all the body which produces the trouble. In the efforts to attain this the late Mr. M'Gill, of Leeds, and Belfield, of Chicago, stand prominent, and others have occasionally followed their example. But somehow to the majority of surgeons the radical operative methods have not commended themselves, and in the fourteen years which have elapsed since M'Gill's reports there certainly has been no general adoption of prostatectomy. If to-day British and Irish surgeons stand in the position that the principle of operative interference is accepted and practised on some approved line, I think I am right in claiming

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for Mr. P. J. Freyer, of London, that it is due to his strong advocacy and to the remarkably successful results which he has achieved.

I do not intend to discuss the cauterising or cutting operations upon the prostate through the urethra, by the methods of Bottini or Norton, in which the object is to remove only such portions of the gland as cause obstruction to the flow of urine. I wish to refer rather to those operations which aim at removal of the whole gland, or of adenomatous masses, which, for practical purposes, may be regarded as the gland. These may be divided into two great classes—the suprapubic and the perineal ; and a subclass may be added in which the two procedures are combined.

Suprapubic cystotomy for the removal of tumours of the wall or of stone, appears to have suggested to M'Gill, of Leeds, that a like course might be successfully pursued in regard to the prostate. His first operation was done in March, 1887, and this, with three others, was reported to the Clinical Society of London in November of the same year. His example was followed by his colleagues, and two years later he reported the results at the meeting of the British Medical Association. Twenty-four operations had been done, and the number was made up as follows :—M'Gill, 12 ; Atkinson, 5 ; Mayo Robson, 3 ; Jessop, 3 ; Pridgin Teale, 1. Of these four died, and of the remaining twenty, seven no longer required the use of a catheter and were able to expel urine normally. You will notice, therefore, that only about one-third of the surviving patients were restored to freedom of urination.

But in comparing these results with what we expect to-day, it is important to note particularly the nature of M'Gill's early operations. He says : " The growth has been removed partly by tearing with forceps and partly by a strong cutting instrument which I have devised for the purpose. This is a tedious and not very elegant proceeding ; it will, if the opera-

tion prove a useful one, probably be improved. The piecemeal removal which I have practised has, however, been thus far satisfactory." ("Clin. Soc. Trans.," 1888, p. 52.)

Now when we look into the details of the reported cases (*Brit. Med. Jour.*, Oct. 19, 1889, p. 864) we find that in most instances only a partial removal was effected, and that the patient had still to run the risk of a continued growth of the parts left behind. Thus we have these descriptions of the parts removed :—(Case 2) Middle lobe, size of a bean ; (3) collar enlargement, size of a walnut ; (8) middle lobe, size of a filbert ; (12) piece, the size of a small pea ; (16) middle lobe, size of a filbert. Atkinson snipped off a middle lobe with a scissors, and enucleated the lateral lobes with the finger. In the 18th case M'Gill "enucleated a portion" of the prostate ; and in the 20th, having removed the middle lobe with the forceps, enucleated the lateral lobes. These cases, therefore, were in the main partial removals by means of scissors and forceps, and the enucleation was apparently an unexpected incident arising during the operation. The fact that adenomata of the prostate could be so removed was already known. Harrison had reported such a result in the course of a perineal operation for stone. In 1878 Bickersteth of Liverpool, in performing lateral lithotomy had shelled out an adenoma the size of a hen's egg. In 1870 Sir William Fergusson "narrated a case where, in a patient eighty years of age, after removing the stone by lithotomy, he extracted the lower part of the prostate with the finger as readily as if it had been a stone" (Harrison on "Surgical Disorders of the Urinary Organs," p. 343, 3rd Edition). Other like cases are on record.

The possibility of enucleation, then, had been known for many years, and two years after his first case M'Gill, with larger experience, laid down the principle that the "prostate should be removed as far as possible by enucleation with

the fingers, and not by cutting." Nevertheless, this fact and the promising successes of M'Gill and his colleagues appear to have made hardly any impression upon the surgical mind in these countries. Only here and there did their suggestions produce any effect; there was no general acceptance, and the position may be taken as accurately described by Buckston Brown, who so lately as last year (*Brit. Med. Jour.*, March 29, 1902, p. 763) declared: "The fact is that prostatectomy has been abandoned by the majority of surgeons as too dangerous an operation to be undertaken save under very exceptional circumstances." It was only a year ago that Freyer's reported cases and the heated controversy which they excited awoke the profession generally to the powers within our reach in this branch of surgery. The American surgeons—notably Belfield and Fuller—were not, however, unimpressed by English experiences, and in that country the operation has reached a stage of marked development.

The operation which I have carried out is that advocated by Freyer, and it is to him I owe it that I have had some success in dealing with enlargement of the prostate. The method is thorough, and it requires no instrument for the ultimate steps. The bladder is opened in the suprapubic region having first been thoroughly washed out, and distended with boric lotion. A catheter is allowed to remain in as a guide to identify the urethra. The prostate having been reached the mucous membrane is snipped or scraped through. Then two fingers of one hand are passed into the rectum to raise and fix the prostate, and the forefinger of the other is used to shell out the structure either in two or more well-defined pieces or in a single mass. This is sometimes a very laborious task, but with patience the whole obstruction can be satisfactorily removed. Bleeding is generally controlled by free douching with hot boric lotion. A large drainage

tube is allowed to remain in for 48 hours, and the bladder is daily washed out. The wound is usually closed in about four or five weeks.

The operation by the perineal route consisted at first in making an incision into the urethra, and then dealing with such obstructing portions as could be removed by means of forceps or scissors. But it has now developed into an enucleation, and is much practised by American surgeons. Thus A. B. Johnson, New York, makes a curved incision in front of the anus, and exposes the prostate by dissection. "After incision of the capsule upon either side in the direction of the fibres of the levator ani, the two halves of the gland were enucleated by the forefinger." ("Annals of Surgery," vol. 24, p. 426.) The urethra is not opened. Samuel Alexander, of New York, says: "The true breadth of the prostate is broken into by the finger just beneath the mucous membrane of the prostatic urethra, and the incised prostate is shelled out from within its sheath by digital dissection." ("Annals of Surgery," vol. 23, p. 334.) Nicholl and others in this country prefer the perineal operation.

The combined perineal and suprapubic operation is represented by Belfield in America. He believes that the low-level drainage thus secured avoids dangers which may attend the high operation. I have no doubt that in certain cases this combined method is admirable. It will always be of special advantage when the urine is putrid, because it enables us to secure safe tube drainage until the wounds are secure against absorption. But I am not yet prepared to adopt it as a routine method, however excellent it may be in special cases.

For reasons which I shall state later on I have selected the suprapubic operation, and the cases in which I have practised it are as follow:—

Case 1.—The patient was a gentleman, aged sixty-six, who for nearly fifteen years had suffered from frequent micturition,

and who consulted me first about five years ago. Since that time he has been obliged to use the catheter two or three times a day, and on the occasions when he tried to empty the bladder without it the effort was prolonged and painful. The residual urine was from 3 to 4 ounces. The prostate could be distinctly defined by the finger, the left lobe being the larger. He frequently inquired if an operation could relieve him, but I pointed out that while he could use the catheter I should not recommend one. Later on unilateral vasectomy was performed in London without benefit. Meanwhile the difficulty of catheterisation increased. Quite recently he had a sharp attack of cystitis, and his general condition became so serious that I advised him to submit to removal of the obstruction by direct operation. He readily assented being almost worn out mentally and physically. Assisted by Sir Thornley Stoker, Mr. Harvey, and Dr. Coleman, I opened the bladder above the pubes on February 15th. 1902. Two smooth lateral lobes were found projecting well into the cavity, with the catheter lying between. There was no middle lobe. The mass was lifted well up by two fingers of the left hand in the rectum, and the covering mucous membrane on the left side was divided so as to admit the finger tip. Keeping the nail close upon the mass it was slowly separated from its outer covering and the urethra, and extracted. This took about twenty-five minutes. The right lobe was removed in the same way in ten minutes Each mass came out unbroken, and enclosed in a thin, white fibrous capsule. The bleeding on the left side was sharp, but was controlled by sponge pressure and hot boric lotion. Then a large drainage tube was placed in the bladder. No sutures or ligatures were used even in the external wound. The temperature rose to 101° on the second day ; afterwards it remained normal. On the twenty-seventh day 7 ounces of urine were passed per urethram. He left bed in four weeks. He can now hold urine for five hours in the daytime and all night, and he passes it in a normal stream, with full force. He describes himself as a new man.

Dr. H. C. Earl has furnished a report on the specimens, as follows :—

"Microscopically the two tumours show a very similar structure. The glands are large and numerous, some being dilated into small cysts. There is no doubt that a hyperplasia of the glands has occurred. The tissue in which the glands lie is chiefly smooth muscle, with only a very small admixture of fibrous connective tissue. The dimensions are: Right, length $1\frac{3}{4}$ in., width $1\frac{1}{4}$ in., circumference 3 in.; Left, length $2\frac{1}{8}$ in., width $1\frac{1}{8}$ in., circumference $3\frac{1}{4}$ in. Total weight 411 grains."

Last month this gentleman wrote to me:—"A year ago to-day I was in your hands for operation, which you performed so successfully, and I feel that I must send you something for the Hospital (your Ward, if possible) by way of a thankoffering for all you did for me. . . . I am thankful to say that I have no trouble at all with the waterworks part of my mechanism, and you can appreciate what a relief that is."

Case 2.—A gentleman, aged seventy-five. He had been using a catheter for some years, but latterly it always produced bleeding, and sometimes he quite failed to pass the instrument. The residual urine varied from 4 to 6 ounces. There were a few granular tube casts, and a small quantity of albumen was present. Urea 7 grains to the ounce. The prostate was easily outlined in the rectum. I put before the patient, who was a medical man, all the circumstances of his case, but he said his life was miserable. At times he had from 20 to 26 calls to urinate during the night. I accordingly operated on the 28th September, 1902. The lateral lobes were enucleated as before. There was no middle lobe. All went well until 48 hours later, when he had a slight cough, and râles were found present. Dr. Coleman saw him with me at once, but in spite of all our efforts the bronchial condition became worse, and he died on the fifth day. Throughout there was no trouble with the operation wound, and urine flowed freely from it. I have no doubt that the fatality was due to the irritation of the air passages set up originally by the ether, although the amount administered was small. In this case the weight of the tumour was 600 grains.

Case 3.—J. T., aged sixty-two, was admitted to the Richmond Hospital on October 2. He had an enlarged prostate. He complained of great frequency of micturition day and night, sometimes as often as twice in an hour. His condition was such that he could not work. Residual urine 4 ounces ; it was alkaline, and contained pus and blood cells, much epithelium, and some granular casts. He was suffering from some cystitis, and this having been allayed I operated on the 13th of October. The left lobe was removed, but an examination of the right showed it to be of normal size, and I determined not to interfere with it. The patient passed water per urethram on the 8th of November. There was a good deal of calculous deposit, which delayed the healing of the wound, and on the subsequent closure of the fistula he passed a quantity of small fragments. He is now quite free from all trouble. He sleeps for six hours undisturbed, and can pass water in a full stream.

Case 4.—W. H., aged sixty-three ; admitted to Richmond Hospital, Oct. 9, 1902. For three years he has had to pass water about 14 times a day. He has been using a catheter for some time ; and he was admitted for complete retention, which the medical men who saw him in the country could not relieve. Mr. Moore, the House Surgeon, succeeded in passing a catheter on his arrival. He had a bad attack of cystitis, which was treated. The residual urine was 6 ounces ; it was alkaline, and contained some albumen and a very few granular casts. The arteries were very rigid. I operated on him on Nov. 10, 1902. The whole mass of the prostate came away in one piece, including the prostatic urethra, the enucleation lasting about ten minutes. There was not much hæmorrhage at the time, but it was reported at four o'clock that there was smart bleeding. Mr. Harvey used the hot douch with some effect, but at seven the bleeding recurred. Adrenalin was then injected without avail, and I saw the patient with Mr. Harvey a little after eight. We then decided to use a compress on the prostatic site. For this purpose the patient was anæsthetised. A large plug tied in the centre with a long silk

ligature, was introduced. The ligature was attached to a catheter which had been passed, and was then withdrawn, carrying with it the silk. By traction upon this I found that the bleeding was at once stopped, and an assistant remained with the patient for this purpose. After thirty-six hours the plug was removed. Although the patient never had a temperature above 100°, the healing of the wound was delayed by the disturbance and by the calculous deposits upon the edges. He has returned home, and has no pain and no difficulty in passing water. He complained at first of some frequency, but this soon abated. The tumour weighed 932 grains or over two ounces. (Plate II.)

Case 5.—A gentleman, aged fifty-three. For some years he has had to rise two or three times at night to pass water. About two years ago he found he had to do this in the daytime about every hour. The residual urine was about 4 ounces. It became necessary to use a rubber catheter ; without it he could pass only a few drops after much straining. Sometimes he has had to rise every quarter of an hour at night. The straining often caused an evacuation of the bowel. Difficulty in passing the catheter followed ; and at the time I saw him with Dr. M'William, in December, he was using a No. 5 Coudé catheter. He had several attacks of cystitis, and was subject to frequent rigors. He accepted the recommendation of operation, and accordingly on the 13th of January last I removed the tumour, assisted by Sir Thornley Stoker, and in the presence of Dr. M'William, Dr. Dobbin, and Dr. Keegan. Dr. Coleman gave the anæsthetic. Unlike the other cases the lobes were irregular in outline, this being produced by adenomatous masses of varying size. They were enucleated to the number of five, three of them being of the size of walnuts. The case was the most difficult I have had, and took a considerable time ; but I am glad to report that the patient never had a bad symptom, and has returned home. The case is interesting in regard to the comparative youth of the patient.

Of course the advocates of each method have fault to find

with all others. Thus it is objected that the suprapubic operation is dangerous, that drainage is unsatisfactory, that extravasation of urine and sepsis are likely to take place, and that the recovery is tedious. For myself I can say that in a large number of cystotomies which I have done I have seen sepsis only once, that I have had only one death resulting from operation, and that extravasation of urine has never taken place. The recovery is tedious, but rarely exceeds five weeks.

The objections to the perineal route seem to me to be more weighty. Those who have explored the bladder through the lower central incision have probably experienced how difficult it is to reach the upper limit of a moderately enlarged prostate. Watson, of Boston, himself an advocate of this procedure, points out that an essential possession for the surgeon who adopts this method is a forefinger with a working length of three inches or more. Well, first you must have the finger ; but, having it, what is the result ?—that only two-thirds of the cases could be dealt with through the perineum. As M'Gill judiciously declared : " It is unwise to commence an operation with the probability of failing in 30 per cent. of the cases." Of course the answer will be that the surgeon in such a case could then do a suprapubic section ; but, on general grounds it is undesirable to change a method midway, and certainly better to select a plan which we can follow out to a definite conclusion. Efforts to lessen the difficulty of reaching the distant parts of the prostate by the finger through the perineal urethra have naturally been made. One is to draw it down by fingers in the rectum ; another to make a small suprapubic wound, and through it push the prostate towards the perineum ; and Fry passes a hollow ball into the bladder through the perineal wound, distends it with water so as to make a bulk sufficient to " hitch " against the upper vesical portion of the prostate, and then pulls it down by

means of the flexible tube through which the water is passed into the ball. It looks an attractive contrivance, but I know a case in which the tube broke off on traction, and the ball was left useless in the bladder. It further seems to me that there is danger in perforating the vesical mucous membrane during the removal of the prostate through the perineum. That structure is thin, and the finger nail can easily penetrate it. The result would be an opening through which urine would infiltrate the structures at the outlet of the pelvis, in spite of the draining by catheter through the urethral incision.

But, outside all these possible difficulties with the prostate itself, there can be no doubt that we cannot through the perineum make a complete exploration of the bladder with the finger, and that it is quite possible, as I know, to miss an encysted, or even a loose, calculus. I have seen one case which was under treatment for enlarged prostate for some years, without there being a suspicion of stone, and yet the bladder really contained over 80 calculi—many as large as marbles. There the suprapubic route for the combined operations of prostatectomy and lithotomy offered immense advantages over the perineal.

But while I am of opinion that the method which I have followed is preferable to others, I think there are cases in which operation through the perineum may be more easy. For instance, in a man with a large pendulous abdomen, the suprapubic wound is many inches deep, and unless the fat is very freely divided so that the hand can get down into proximity to the bladder, the finger will carry out the work of enucleation with great difficulty; there is, perhaps, more danger of infection, and the wound is slow to heal. Small prostates may be more easily removed through the perineum, but that route is certainly unfitted for the enucleation of some of the large masses with which we meet. The finger

in such cases has to be supplemented by instruments, and the tumour instead of coming away in a well-defined mass is broken up into several pieces.

There are a few points to which I wish to call your attention as the result of my own observations :—

1. So far as I have seen, the lateral lobes are most frequently the cause of obstruction. I have not myself seen a true pedunculated mass producing a block at the internal orifice, although we have been in the habit of laying stress upon this as the most usual cause of the urinary distress.

2. The bulk of the prostate as felt in the rectum gives us no indication as to its intravesical contour. It may present two smooth lateral masses in the bladder, with the urethral opening forming a dimple between, or it may have a somewhat undulating surface due to the projection of adenomatous tumours in the substance of the gland itself. No extravesical examination will determine the difference, although in cases where the prostate is very large its general outline may be determined by a bimanual examination—two fingers of the left hand being in the rectum, and the right fingers over the bladder.

3. The size of the prostate has no necessary relation to the severity of the urinary distress. In the case in which I removed only one lobe, which was small, the patient had had repeated attacks of retention and cystitis. His calls at night were often as many as twenty, and he was quite unfitted for work. Yet the tumour is of inconsiderable size compared with the remainder of those I show you.

4. The smaller the tumour the more difficulty relatively is its enucleation. Mr. Freyer has also observed this fact, and he accounts for it by the suggestion that the large tumour shakes itself free, as it were, from its natural attachments·

The prostate which I exhibit, which was removed with its urethra, took only ten minutes to enucleate. The single lobe took twenty-five minutes of hard work. I think the removal of the larger tumours is more facile because they are more bulky, looser in their attachments, and therefore more easily dealt with by the forefinger when they are pressed upwards from the rectum. The smaller ones are not so stable ; they are apt to move much during the enucleating process. Added to all this there is no doubt that the attachments of the mucous membrane are more intimate, and require a good deal of cautious force to free them.

Although hæmorrhage is usually easily controlled by flushing with a hot boric solution, it may be severe, owing to opening of a vein in the prostatic plexus. Bleeding has sometimes caused death, and in one of my cases I found it necessary to introduce the compress which I have described. The objection to the plugging of the bladder is that we have afterwards to remove a bulky mass, and so disturb the union which has begun. There is then risk in opening channels for infection or extravasation. I have devised a method of dealing with the complication which, I think, will be found effective and simple. A piece of smooth red rubber, one-sixth of an inch thick, is cut in oval shape, two inches by one and a half. A long, strong silk ligature is passed through the rubber at a point midway in its smaller diameter, and two-thirds of an inch from the edge of the larger diameter. The needle should pass in obliquely from without. The other end of the silk is introduced in the same way half an inch from the opposite edge, and the two portions are tied together in a knot, close to the under surface of the rubber. The ends are then secured to a catheter,which has been introduced through the urethra, and the instrument is withdrawn. Pulling on the ligatures which have so been carried out through the urethra, the flexible rubber oval fits easily over the site of

the prostate, and moderate traction will control the bleeding. This can be effected by attaching the traction silk to a piece of strong elastic, which is in turn secured to a turn of bandage round the lower part of the patient's thigh. The tendency to hæmorrhage, however, is not likely to continue long. In order to remove the rubber a silk ligature is passed through one end, about a quarter of an inch from the edge. Traction upon this pulls out the little plaque edgeways, and practically no disturbance of parts results. The objection to the cotton pad suggested by Keyes is that it is complicated and cumbrous, and that adhesions occur which make the removal most painful and demand an anæsthetic. The rubber is clean, small, non-adherent, and it can be removed without difficulty.

In a discussion upon this subject in this Section last year several members declared that enucleation of the prostate, as a whole, was an anatomical impossibility. I have, in another paper (*Brit. Med. Journal*, May 31, 1902), stated the views of many surgeons upon this point. I think there can no longer be any doubt that while we often remove only adenomata, leaving behind a thin layer of the original gland, expanded and squeezed into a thin layer, we can, and do, at other times take away the whole prostate. I show you the enlarged prostate removed in one piece, and enclosing in its mass the prostatic urethra. Strange as it may seem, the patient has not suffered from the mutilation, and the same result has been observed by Freyer and other operators who have had a like experience.

The after management of these cases needs the utmost care, but the surprisingly good results which follow are worth all the time and trouble which the surgeon devotes to them.

A CONTRIBUTION TO THE SURGERY OF THE PROSTATE.*

By Sir Thomas Myles, F.R.C.S. ;

Ex-President, Royal College of Surgeons, Ireland; Surgeon to the Richmond Hospital.

The object of the present article is not to waste time by any lengthened historical review of the subject under discussion, but to deal solely with arguments in support of the two following propositions :—

1st. That the perineal route in the majority of cases is to be preferred to the abdominal for the complete removal of enlarged prostates.

2nd. That the palliative treatment of this condition by the establishment of a permanent supra pubic fistula has not been given a fair trial in this country.

Both of these propositions will, I know, excite a good deal of hostile criticism, but I must trust to the toleration of my readers to give my case a fair hearing.

When any method of operation claims to be the best available it ought to possess, in my opinion, the following characteristics :—It should be easier, quicker, safer and more efficient for its purpose than any rival method. Let us now, taking these points as a basis, analyse and compare the abdominal and perineal routes. At first sight the abdominal route seems obviously easier than the perineal for obtaining access to the prostate, but this greater facility I believe is more apparent than real. It is much easier to open into

* Read before the Section of Surgery of the Royal Academy of Medicine in Ireland, on March 6, 1903.

the bladder by the abdominal route than by the perineal, but to open the bladder is one thing ; to attack the prostate is another

Men who have opened the bladder very frequently for the removal of stone by the abdominal route become so quick and skilful at the operation, that they are apt to be somewhat prejudiced in favour of this route, even for a totally different ailment. They are, I believe, misled by a false analogy. There is really no true analogy between removal of a stone from the bladder and enucleation of a prostatic growth that is not pedunculated. In fact, if one reflects on the two problems, it will be seen that the very objections to the perineal route for lithotomy become arguments in favour of this route for enucleation of the prostate, and that the advantages of the abdominal route for stone become disadvantages when the prostate is our object.

Every surgeon knows that to open a distended bladder over the pubis is an easy and safe operation, that when it is opened he can in most cases just reach the floor of the bladder with his finger tip, and sweep it around it, but unless he has a very long finger, or the patient is very thin and very profoundly anæsthetized, so as to produce complete muscular relaxation he can do very little more than this. To get his finger-tip down to the apex of the prostate requires a considerable effort, and a good deal of compression of the abdominal wall on the one hand, or a good deal of pushing up of the prostate from the rectum on the other. This difficulty of getting complete access to the prostate becomes in stout elderly men very great indeed, in fact in some exceptional cases it amounts to a physical impossibility. I do not wish to labour the point unduly, but I think most surgeons of experience will agree with me when I say that it is very often a somewhat difficult procedure to reach with the finger-tip and shell out a prostate by the abdominal route.

Let us next take the question of the relative speed of the two operations. A distinguished London surgeon recently said during his visit to Dublin that he would undertake to shell out by the abdominal method any prostate in seven minutes. Such rapidity of execution is not common in Ireland, I think. I confess I have never yet seen the operation, even in the easiest cases, occupy less than twenty minutes, though in this, as in other operations doubtless when we have all had more practice, we shall become quicker at it, but I have very little hope that we will at any time reach the record-breaking speed claimed bv the operator referred to.

The third point, that of the relative safety is the most important of all. Few here will deny that at the best the removal of the prostate by the abdominal method is a grave and dangerous operation, attended by a high mortality. Occasional brilliant successes must not be allowed to blind us to its danger. Perhaps I am inclined to exaggerate those dangers, but speakly frankly I confess that I regard it as one of the gravest operations any surgeon can undertake. That it should be so is not unreasonable. The patients are elderly men, suffering almost invariably from secondary kidney disease consequent upon obstruction to the ureters, produced by the incomplete emptying of the bladder ; their general vitality has been lowered by the frequent disturbance at night with the inevitable loss of sleep ; the circulation in the pelvis has been impeded by the prostatic growth and the constant straining, so that they always suffer from more or less varicosity of the pelvic veins, which renders them peculiarly liable to septic absorption. Is it to be wondered at, therefore, in the face of all these unfavourable factors, that the mortality should be so high ?

I believe that the cause of death in the majority of these cases is sepsis pure and simple. Remember that the bladder

in such cases is usually enormously dilated, and incapable of contraction ; that after the prostate has been shelled out a large raw cavity is left, in which pus and decomposing urine must accumulate ; that this cavity cannot be efficiently drained through a suprapubic opening alone ; that the veins of the prostatic plexus must be torn in the operation, and it cannot be a matter of wonder that sepsis should occur under such circumstances.

I am quite prepared for the assertion that death in such cases is due to pneumonia, shock, &c., just as in the early days of laparotomy the condition euphemistically described as " secondary shock " was alleged to be the frequent cause of death after operation ; because such cases frequently exhibited neither a high temperature nor a quick pulse. We know that acute sepsis was the cause of death in all these cases, and I am convinced that the pneumonia, shock, &c., credited with the responsibility of the fatal issue in prostatic operations is really sepsis, what I might call an inevitable sepsis, when all the circumstances are fairly considered.

Let us turn now for a moment to the consideration of the comparative advantages of the perineal method. To enable me to place the two methods before you so as to admit of comparison, it is necessary for me to give you some details of the perineal operation, as I suggest it ought to be performed. First, a free exposure of the prostate is necessary. This can best, I think, be obtained by a Y-shaped incision, a short vertical and two fairly long lateral incisions joining the first at its lower end three-quarters of an inch in front of the anus. When these incisions are deepened, the bulb covered by the accelerator urinæ and the transverse perinei muscles come into view. The latter are now divided and the dissection carried deeply into the anterior portion of the ischio rectal fossa on each side. This exposes the anterior portions of the levatores ani, becoming aponeurotic towards

the front. A director is now introduced between these muscles and the prostate, and the muscle and aponeurosis freely divided. When this is done and the rectum retracted, the prostate is very well exposed, if the patient is in a proper position, that is one compounded of the ordinary lithotomy posture and Trendleburg's. The prostatic capsule, formed by the pelvic fascia and its own inner capsule, are now divided either with an angular scissors or on a director, and the gland tissue of the prostate is now open to attack. It will be found if this procedure is carried out that the capsules can be easily stripped off the gland all around with the greatest ease. Bleeding can in the various stages be easily controlled, and the whole operation does not call for any high degree of technical nor for any profound anatomical knowledge. As I have said, the gland can be easily shelled out of its capsule, but clearing it from the urethra is much more difficult. The capsule strips off readily, but owing to the presence of the numerous gland ducts, stripping it off the urethra is more difficult, and requires to be done more carefully. It is at this stage that a staff in the urethra is useful. It is hardly necessary and sometimes even in the way in the earlier stages. In a certain number of cases, practically the entire gland can be thus removed without opening into the bladder at all, but in the majoity it will, I think, be found either that the mucous membrane of the bladder covering the prostate, or the upper part of the urethra will be torn into, as one or both are often very soft and friable from the continuous maceration in an alkaline fluid. If the urethra has not been opened a grooved staff is passed into the bladder and the prostatic urethra opened on it. The finger through this opening can now explore the interior of the bladder either for a pedunculated growth or for the calculus that is so often present. Through this opening a stout drainage tube with many apertures is passed into the bladder and secured in position. The wound

is now douched out thoroughly, a few sutures are passed close to the middle line, and the space formerly occupied by the prostate is temponed with gauze brought out on each side.

What are the advantages of this operation ?

First, and above all, it guarantees that the bladder shall be kept empty, and that no accumulation of urine or pus can take place in a pouch with a high capacity for absorption.

Second. That no hæmorrhage shall take place, which through its source being invisible is uncontrollable by direct surgical methods.

Third. That every stage of the operation is in sight of the operator.

Against it are the facts that it requires a bigger and a more elaborate dissection ; that it may, until one acquires practice at it, take more time in the initial stages, and lastly that there is a supposed element of danger in detaching the rectum from the central tendinous point of the perineum. The value of each of these objections has to be decided by every operator for himself, and it is not necessary for me now to argue *pro* and *con* about them at greater length.

One word before I conclude this part of my subject. I will ask you in the subsequent discussion not to confound the perineal operation I have briefly outlined for you with the operation usually spoken of as the perineal operation, in which the urethra is opened on a staff through a median or other incision, and the finger introduced through this wound shells out the prostate through a rent in the lateral wall of the urethra. That you will see is a totally different method in principle ; it is merely a modification of the blind operation from above, in which the sense of touch is one's only guide, and its only advantage, a very great one I admit, is that it provides the first and last essential, an efficient drain for the bladder.

Before leaving this part of my subject I should like to say how much we are all indebted to the brilliant work of our distinguished fellow-countryman, Mr. P. J. Freyer, for our present knowledge of this subject, and for the great and unquestioned progress the scientific treatment of this condition has made in the last few years. To him alone the entire credit of having placed the operation on a scientific basis is due, and I am sure I express your feelings as well as my own in trusting that he may live for many years to still further advance the science of which he is to-day one of the most brilliant exponents, and to effect in other branches of surgery the improvements in principle and in technique which in lithotrity and prostatectomy have placed him to-day in a position of such well-deserved pre-eminence in the surgical world.

Now having stated the case for my first proposition, let me say a few words about the second. I think that in far too small a proportion of cases is the idea of establishing a permanent suprapubic drain entertained by surgeons, and yet there is much to be said in its favour. Let us take a typical case. An elderly gentleman retired from active work possibly living on a pension, with others dependent for their maintenance in comfort on the slender thread of his life. He has been living a catherer life for some years ; he is going down hill, and the consulting surgeon is called in to offer advice.

The surgeon usually sets before the patient either a continuance of the treatment by catherer, supplemented by washing out the bladder with antiseptic fluids and medical treatment on the one hand ; or on the other a grave operation attended by a high degree of risk to his life, necessitating confinement to bed for three weeks or a month at least. And though this operation is often most brilliantly successful, it usually necessitates a modified use of the catherer for some

time after. I venture to submit that an intermediate course might more frequently be recommended to him with benefit ; that of establishing permanent suprapubic drainage. The operation for this is easy, simple and safe. It does not even require a general anæsthetic ; it can be done under cocaine. It involves merely a small incision on the middle line, hooking up the big bladder and fixing it with two stitches on each side of the wound. In a few weeks the opening contracts and a short piece of rubber tubing and an appropriate truss guarantees that our elderly patient shall not live in constant terror of complete retention any longer, and that he can easily wash out his bladder himself as often as he wishes, that he can walk about without the haunting fear that he may not be able to obtain the necessary privacy to pass the catherer which he always carries with him, and above all that in submitting himself to this trivial operation, he does not place in jeopardy the comfort of those who are dependent on his life.

It may be said that a permanent urinary fistula makes life intolerable to the man himself and to those around him. That is not so, and should not be so if a little care and thought is given to the mechanical appliance worn by the patient. Hitherto too little attention has been given to the development of these mechanical appliances, but I am confident that if any of our professional friends with an aptitude for mechanics gave their mind to the subject they would easily effect such improvements in these appliances as to win the approval even of those who now disapprove so strongly of their use.

CARCINOMA OF THE LARYNX.*

By Patrick Dempsey, F.R.C.S.I.

My principal object in bringing forward this communication is to read the notes of the following case of laryngeal epithelioma, which I have already exhibited at this meeting of the Surgical Section of the Royal Academy in Ireland.

P. B., a school teacher from the North of Ireland, æt. 62, consulted me on June 23rd, 1902.

He gave the following history :—Three years previously he noticed that his voice tired rapidly. For nearly two years this was the only inconvenience experienced, but then slight hoarseness developed, and speaking became a rather difficult task. The hoarseness increasing, he became anxious about his condition, and now for the first time consulted the local doctor. Simple remedies proving ineffective, he went to Belfast, where a laryngeal examination was made, and he was informed that he had a small growth in the interior of his larynx. Portions of the growth were removed endo-laryngeally, a microscopic examination was made, and he was informed that he was suffering from a "papilloma." His medical man recommended operation with a view to removal, but this was refused, and a week later he travelled to Dublin, was admitted to the Mater Hospital, and thus came under my notice. At the time of admission the patient, a thin, pale, but not unhealthy-looking man, spoke in little more than a whisper. He gave the history just related, and in reply to further questions I found a very good family history. He had not suffered from syphilis, and beyond

* Read at the Section of Surgery of the Royal Academy of Medicine in Ireland, on April 3, 1903.

hoarseness he experienced no inconvenience. Deep palpation of the neck revealed no enlarged lymphatic glands, nor was any pain produced on pressure over the larynx itself. Laryngoscopic examination, however, showed a growth springing from the anterior third of the left vocal cord. It was about the size of a hazel nut, pale pink in colour, with a broad base, and distinctly papilomatous in appearance. Both cords were freely mobile and the left was slightly congested, but otherwise the larynx was normal. From its appearance, together with the fact that previous microscopic examination had pronounced it innocent, I was inclined to regard the growth as a papilloma, but taking into view its position, and the age of the patient, I only consented to remove some portions endo-laryngeally on the understanding that the patient would submit to a more radical procedure in the event of my considering such necessary. To this he agreed, and on the following day I took away about one-fourth of the growth with a Schroeter's cutting forceps. Two days after I removed still more, and succeeded in punching out some of the deeper portions of the growth. The result of the two days' work I sent to Dr. McWeeney for microscopic examination. The next day I received his report stating that he had prepared several sections and that they all showed typical epitheliomatous structure. I have to-night shown two of the sections, both of which contain abundant cell-nests. Convinced that intra-laryngeal methods would not effect a cure, I put the situation plainly to the patient and strongly advised him to allow me to open the larynx from without, and to carry out whatever I considered necessary. The man, whose hoarseness had largely disappeared as a result of the portions of growth already removed, was at first inclined to be satisfied with his much improved voice, but subsequently wiser counsels prevailed, and he submitted to the operation.

Assisted by Mr. Blayney, I made a median incision extending from the hyoid bone to about the level of one inch above the supra-sternal notch. Dividing the soft structures and pushing the muscles to either side, I exposed freely the thyroid and cricoid cartilages and the upper three or four rings of the trachea. All bleeding being arrested, I opened the trachea just above the isthmus of the thyroid gland and introduced a Trendelenburg's tampon cannula and inflated to its full. I dispensed altogether with the long tube and cone portion of the apparatus, as it is very clumsy and renders respiration much more difficult. The patient's breathing was very shallow at times, but on the whole he took the chloroform well. I now with a sharp knife divided the thyroid cartilage and crico-thyroid membrane in the exact middle line, having previously pierced both wings of the former with the object of future sutures. The interior of the larynx was now plainly visible and beyond a small nodule on the left cord there was no kind of disease. Having mopped the mucous membrane with a 20 per cent. solution of cocain, I freely excised with a scissors the left vocal cord and ventricular band. There was but little bleeding, and I immediately brought the edges of the cartilage together and fixed them in a position with three catgut sutures. I next withdrew the Trendelenburg and substituted an ordinary Parker's cannula, which was left in position for twenty-four hours.

Except for the fact that on the third day after operation the pulse became so weak and intermittent as to require two hypodermic injections of liq. strychninæ, the recovery was uneventful. The temperature never exceeded 100° ; deglutition was carried on with ease ; the patient was up on the fifth, and discharged from hospital on the fourteenth day after operation. At the time of his departure there was complete aphonia, but on reporting himself to me three months

later, the man could speak with a very rough whisper, produced, as I found on examination, by the healthy right cord swinging well over the middle line to almost meet a small knuckle of soft tissue on the left side of the larynx. The patient felt in excellent health, and had gained 7 lbs. in weight. On the present occasion, nearly nine months after operation, his condition is good, and he speaks with a fairly loud, hoarse voice.

This case is a typical one of a slow-growing, intrinsic cancer, and illustrates admirably the necessity of laryngoscopic examination if the symptoms are at all suspicious. The subject is one which has not recently been discussed at any of our meetings, and consequently I think it may prove useful if I now refer to the main points of the disease as accepted at the present time.

Primary cancer of the larynx may be divided into two broad groups, the intrinsic and the extrinsic. The first have their situtation in the immediate neighbourhood of the glottis and embrace cancers situated on the true and false cords, the ventricles of Morgagni, the sub-cordal portion and the inter-arytænoid space, while to the extrinsic variety belong cancers of the epiglottis, ary-epiglottic folds, sinus pyriformis and posterior pharyngeal wall of the larynx. This classification is, as we shall see, subsequently, of both clinical and anatomical importance. As to the position where the trouble first begins, all observers agree that the cords are the regions most frequently affected, and true probably more often than the false. The position of the growth is of importance with reference to the spread of the disease, more especially so with regard to the neighbouring lympathics. The latter are admittedly engaged at an early date in cancer of other organs, but in the larynx somewhat of a departure is seen from this rule.

According to Krishaber* the lympathics are only engaged

in the extrinsic form, but this view, though correct in the main, is not altogether so, as many cases of extrinsic cancer are accompanied in their later stages by glanular enlargement This frequent non-implication is to be explained by the fact that the region of the glottis is but sparsely supplied with lymphatic vessels, and as a result follows the practical and very important fact that primary intrinsic larnygeal cancer may, for a considerable time, be considered as a purely local affection, whilst the extrinsic variety loses this characteristic at a very early period.

The spread of larnygeal cancer towards the periphery, whether slow or fast, takes place "by continuity." If the limits of the larynx are overstepped, the next organ met with is similarly attacked. And so the growth may, according to its situation, involve the trachea, œsophagus, pharynx or tongue. Infection by contact is rare, though Newman,† Semon,‡ and Butlin § have observed cases where a long-standing epithelioma of one cord has been followed by a similar symmetrical growth on the previously sound opposite cord.

Metastases are very rare though not unknown, a few cases being recorded in the literature of the subject. Twenty-two months after operation—thyrotomy—Sands || found secondary affection of the kidney without recurrence in the larynx, and Virchow ¶ similarly during post-mortem examination found cancerous deposits in the lung, while the previously operated upon larynx showed no signs of recurrence. Secondary carcinoma of the larynx is, on the other hand, very rare, and is almost always the result of extension from neighbouring organs. Only four cases of secondary disease are recorded which occurred by way of metastases.

From the histological point of view epithelioma is by far the commonest variety, next comes the medullary form, whilst the scirrhus is rarely met with.

The clinical picture portrayed depends principally on the position of the disease. If the primary growths occur, which it most frequently does, in the immediate neighbourhood of the glottis an alteration in the character of the voice will mark the first act in the tragedy. Only a slight hoarseness without any other inconvenience may be present ; no difficulty in deglutition ; no dyspnœa. The patient more often than not appears in the most robust health, and the hoarseness is usually ascribed to a cold, or overstraining of the voice, and not until simple remedies fail, or the hoarseness becomes more marked, does he commence to suspect that possibly something serious is wrong. At this stage the objective picture may show nothing more than a severe local congestion, and some little thickening in the interior of the larynx. With, however, the progress of the pathological processes the picture changes, the hoarseness increases, and new troubles arise. The faster the tumour grows, and according as it encroaches on the glottis or interferes with the movements of the vocal cords, so much the more does the hoarseness increase until finally total aphonia is produced.

On the other hand if the growth first invades the outer portions of the larynx—the extrinsic variety—either none or very slight hoarseness will be present ; disturbances in deglutition being now the prominent symptom. The patient in this case complains of a feeling of pressure when swallowing and as the disease in these regions progresses rapidly, the felling of pressure will rapidly be followed by that of pain. Dyspnœa depends altogether on the position and size of the growth, and is always a warning that the disease has made considerable progress. Cough is not common, and the discharges at first sparse and thick in the later stages becomes more plentiful, containing often pus and blood, and having a characteristic fœtid odour. Pain, though not always present, is a fairly common symptom during the later stages of the

disease. It usually radiates towards the ear, and this appears to be more frequently the case when the ayrtænoid region is affected. I have already drawn attention to the fact that the lymphatics are often not engaged, but, as a matter of interest, would like to point out that when affected the enlargement is often due to a simple hyperplasia and not to a carcinomatous infiltration. Lublinski** found this to be so in three out of eight cases of lymphatic enlargement. Hæmorrhage occurs on and off, and as a rule indicates that ulceration has taken place. If the latter is on the surface the amount of bleeding is slight, but if the ulceration invades the deeper tissues the bleeding may be profuse enough to cause alarming symptoms.

A patient of Krishaber's* lost 150 grammes of blood, and the bleeding repeated itself for twenty-one days with such effect that the patient succumbed at the end of three weeks. Dreyfous†† records a case where the patient died from hæmorrhage two and a-half months after tracheotomy due to erosion if the sup. laryngeal artery, and Desnos‡‡ records another, where invasion of the carotid was the cause of rapid death. Krishaber* reports a case where a continuous stream of blood poured out from the tracheotomy tube one month after operation, the saliva not being even stained.

If we analyse, then, the individual symptoms as they arise we may roughly divide the course of the disease into three stages. In the first period the disturbances are moderate functional ones. The patient complains of a slight hoarseness with intrinsic, or a moderate alteration of the act of swallowing with the extrinsic variety, but otherwise the general condition is excellent. Sooner or later this condition passes into the second stage, in which the hoarseness increases the difficulty of swallowing is greater, pain will be present, and disturbance of respiration will increase to dyspnœa.

Yet the growth, though perhaps of considerable size, may

still be considered of local malignancy, until further changes take place, and the third stage is entered upon. Now all the clinical symptoms are intensified. There may be present hoarseness or aphonia, unbearable pain on swallowing, difficulty in breathing, fœtor, wasting and loss of strength. The glands in the neck are enlarged, the disease is no longer a local one, and the lethal end follows rapidly.

As regards the treatment of this disease, I need hardly point out that total removal of the growth is the one object in veiw. If the case is diagnosed at an early stage and the cancer is circumscribed, a thyrotomy will be sufficient to allow complete removal, but failing this it is a question of complete or partial laryngectomy. Thyrotomy gives by far the most satisfactory results, it is not a dangerous procedure as regards the immediate consequences of the operation, and in suitable cases is quite sufficient. Partial laryngectomy has also given some brilliant results, but the operation is a dangerous one. According to most trustworthy statistics compiled by Delavan, ||| of New York, out of fifty-six cases of partial laryngectomy fifteen died from operation, eight from pneumonia, one from sepsis, one from exhaustion, and four from other causes, making a total of twenty-nine deaths, or over 50 per cent. from the immediate effects of the operation. As a result of total extirpation twenty-five out of thirty-four cases succumbed to similar causes, no less than nine being due to pneumonia, and five to exhaustion. The best record as to time after partial laryngectomy is Von Bergmann's case, which lived eleven and a half years. A patient of the same surgeon lived six and a half years after complete laryngectomy. These statistics are not very encouraging for the very radical procedures, but with the advance in laryngology which has been made in later years, earlier diagnosis will be made, and as a consequence much better results obtained. B. Fraenkel, of Berlin, has pub-

lished some brilliant results obtained by endo-laryngeal removal, but for my part I shall never be content to adopt this procedure as a means of cure. With these brief statistics I bring this communication to an end. It is by no means exhaustive, as time would not permit of the subject being discussed from every point of view. My main object has been to emphasise the mild symptoms which often mask this insidious disease, and the satisfactory results which may be obtained by operation during an early stage.

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THE PRIMARY TREATMENT OF FRACTURES IN PLASTER OF PARIS.

By William S. Haughton, M.D. ;

Surgeon to Steevens' Hospital, University Demonstrator in Rontgen Photography.

In bringing under the notice of this Section the treatment of fractures, I am fully conscious that the subject is very trite ; and that in consequence it requires some apology on my part.

I trust that the remarks which follow may in some sense justify my doing so—as I am about to advocate a form of treatment which is well known and well recognised, but which has not been put in such universal practice as I believe it deserves.

Fractures form such a large proportion of surgical injuries and are in the main of such painful nature, I feel I may ask the indulgence of the members in bringing before them a treatment which may claim, whatever its other merits or demerits, to be absolutely *painless*.

The first suggestion I received as to the value of this method was in a conversation with Mr. Charles Ballance of St. Thomas's Hospital, while looking over some skiagrams of mine.

I am further indebted to my friend Mr. Lentaigne for opportunities which he has given me of studying the results of this form of treatment in his own practice, and which in his hands have yielded results as surprising to me, as they must have been gratifying to him.

A close study of fractures, extending over a considerable range, from the specialised standpoint of X-Ray exami-

nations in some hundreds of cases, naturally makes one familiar with the exact conditions usual in each fracture, its varieties and complications, and by X-Ray examination *subsequent to treatment* one naturally gains considerable insight into the value of various forms of treatment.

The result of my X-Ray experience has been that I was not satisfied with the commoner modes of treatment, and naturally sought for some more satisfactory method.

The faults of other methods are, they do *not maintain* reduction, no matter how skilfully and successfully carried out by the surgeon ; and so in the eyes of the public do not maintain the reputation for skill which he deserves.

From want of rigidity they cause the patient *unnecessary pain ;* they *permit* shortening ; they produce *angular* deformity ; they require frequent *adjustment*, on each occasion of which the patient is caused unnecessary suffering, *in short* they cause more trouble to the surgeon, nurse, and patient than is necessary in good primary plaster treatment.

All these objections in the case of simple fractures are *aggravated* in *compound fractures ;* in which the removal of splints for purposes of dressing often amounts to agony—while this same dressing may be conducted practically without pain through a window cut in the plaster for this purpose.

Still more remarkable is the behaviour of the *discharge* from a compound fracture treated in plaster—granted that the primary disinfection of the wound with antiseptic was good, my experience of such cases has been that the majority heal by primary union, unless plugged with gauze, when they heal by healthy granulations, from which nothing exudes but a little serum, and the wound is painless. It has been my routine practice during the past four years to treat fractures "at sight" by the method which I am about to describe.

I have applied plaster as a primary treatment in a consecutive series of cases taken as they came in without selection

in hospital and private practice. And I have never had reason to regret it. In three cases only was it necessary to relax the bandage controlling the "bi-valve" splint the morning following its application. And in each of these cases in addition to the fracture, there was extensive laceration and contusion of the soft parts from machinery accidents —which in my opinion caused an inflammatory swelling of the soft parts, quite independent of the fracture.

Let me describe one case. A first class mechanic was admitted to Steevens' Hospital one morning, with a shattered forearm, depending from the elbow, his good hand, steadying the wrist, and blood freely flowing from several wounds along the ulua border.

His history was that in attempting to unhitch a driving belt from the pulley of a powerful engine, his hand and forearm were dragged in between the belt and wheel. Thus crushing the muscles as well as fracturing the bones.

The bones of forearm presented multiple comminuted fractures at three distinct levels—and were compound through seven or eight lacerated wounds. Circulation in the hand was present but very sluggish. Sensation entirely absent below elbow.

He was a very intelligent man, and brightened up considerably when I told him I would not amputate, but try to save the arm.

He was then anæsthetised, and with the help of Dr. Fred Blackley, I disinfected the wounds freely with carbolic lotion, and corrosive sublimate, put on gentle traction, and applied a plaster bivalve splint—of the form I have devised —controlling elbow and wrist.

Next morning some swelling of the hand was noticed, which was completely relieved by relaxing the splint a quarter inch.

His convalescence was uneventful, the wounds were

dressed some six or seven times, and he now once more earns full wages at his job.

The scars in the skin and a slight curve in the ulua border are the only outward signs of his accident, and he tells me his arm is fully functional.

A patient who suffered from a lesser degree of the same injury, and due to same cause I showed here to-night. He tells me he can lift a 56 lb. weight, and do everything with his arm.

In *one case* only during past four years have I *removed* a plaster splint. The patient, a nervous young lady, developed slight hysterical symptoms, and for "peace-sake" I substituted a poroplastic splint.

In one case only have I omitted primary plaster, and I now regret it, as marked improvement set in on twelfth day when I *did apply* plaster. In this case a railway waggon, weighing six tons, went slowly over this man's leg just above ankle; superficial gangrene of the soft parts was obvious—and I was persuaded NOT to use plaster.

Amputation appeared imminent—hillæ proved rapidly—large compound wounds were over both bones, and lumps of the tibia were extracted. Sensation in foot was absent; circulation feeble.

The usual remedies against gangrene were instituted—and successfully. But he suffered much at each dressing, and only after application of plaster had he comfort.

Slowly but steadily he recovered use of leg—with a stiff ankle.

I have treated several cases of compound fracture of the femur and tibia involving knee-joint by this method very satisfactorily, and many of elbow-joint.

Last Easter Monday night I was called to Steevens' Hospital to see a car driver who had been run over by a car,

and had his popliteal artery torn across, with compound wound into knee.

Some years previously he had got bony ankylosis of the knee joint as a result of septic arthritis, and this ankylosis was broken through in his accident, and tore the popliteal artery.

After ligaturing the femural artery, I sutured the old ankylosis together with silver wire, inserted silk-worm gut drain and put up in plaster. The drain proved unnecessary —as union was primary—and he now drives his car again as usual round the Hill of Howth.

I must ask your pardon for the recitation of cases which is always wearisome, and will now allude to the *causes* of *swelling* accompanying fractures.

The swelling may be divided into two classes. Primary —at the occurrence of fracture, and secondary any time after.

The *primary* swelling is of course due to hæmorrhage from *torn vessels* in bone, periosteum, and muscles, and is entirely beyond the control of the surgeon.

The *secondary swelling* has a two-fold origin and is the result of *want* of physiological rest for the part; has a mechanical course and is under the mechanical control of the surgeon.

Its *direct* origin is due to the jagged surface of the insufficiently controlled fragments *tearing* fresh blood vessels in periosteum or muscle; or dislodging clots from these vessels in which such have already formed.

Its *indirect* origin is due to the same jagged fragments causing irritation and pain in the nerves of the part. In consequence of which a reflex disturbance is added to the already existing conditions, which results in an exudation of lymph and blood elements around the fracture, causing an accession to the swelling—in fact a super-added inflam-

mation. This added inflammation is a further call on nature to put forth fresh efforts for the repair of the damage; a work of supererogation. And I submit it is our duty as surgeons not to put more strain on the resources of nature's power of repair than is absolutely essential in our domestic economy.

I am aware some surgeons advocate massage every day from the receipt of the injury. In certain cases of enfeebled circulation this may be necessary, but in the majority of cases it appears to me unnecessary.

The primary stimulus of pain and blood clot around the fractured ends provides quite sufficient building material for the "break-down gang" of osteoblasts and their allies to construct a new union out of.

Too early massage seems to me very like clapping on too many men in a "break-down" gang—who of necessity interfere with one another—do the work clumsily, and produce unnecessary by-products in the case of fractured bone, *excessive callus*, which has been proved undergoes considerable reabsorption. I strongly advocate massage of the functional joints in the second week, and of fracture in the third week.

But it seems to me of more importance to apply an apparatus of such a nature and in such a manner that your patient can, if necessary, get up and walk about on two crutches the day after his injury. Though I think it preferable to delay this getting up (in the case of leg-fractures) till the end of the first or beginning of the second week.

In either case you ensure considerable economy of the patient's time, and simultaneously cause much less disturbance to his general health by shortening his confinement to bed.

Want of fixation, then, of the fragments leads not only to *increased swelling*, but also to *delayed union*, which bring in their train suffering and loss of time. These should be under

the control of the surgeon ; and are, if some such apparatus is used, as the one I will now describe.

There are two distinct methods for applying *plaster of Paris* to a fractured limb.

1. Roller spiral bandage.
2. Bavarian splint.

In competent hands the roller spiral yields splendid results but it requires great practice to apply with even pressure. It has, however, the following disadvantages as compared with the modification of the Bavarian I have found most satisfactory :—

(*a*) It may approximate the bones, causing *angular* deformity, from cumulative pressure of each succeeding *turn* of the bandage.

(*b*) Unless cut down a line in front of limb with sharp knife while soft and secured then with ordinary bandage (practice in Canadian Hospitals)* it is very rigid —no "give" in it—and tension may arise causing gangrene if neglected.

(*c*) Again, unless cut when soft, its removal, should such become necessary, may be very difficult and painful.

(*d*) Limb is inaccessible for inspection or massage.

These objections are all obviated by the modification of the Bavarian splint which I have devised.

The essentials of any Bavarian splint are those of a "bivalve"—a hinge at back and opening at front—but any form with which I am familiar suffers from the sample of plaster not being homogeneous from end to end, which leads to cracking. In the splint I use this is got over by having the flannellette-pattern shaped like a pair of stockings, stitched together down back and along sides and across toes —leaving only top open for pouring in the plaster, which *pouring* ensures homogeneity

* As I am informed by my friend Dr. Cartwright,

I will now conclude by mentioning some ADVANTAGES which may fairly be claimed for this method, and *not possessed by any other.*

1. *Painless convalescence* from the moment plaster has set. During reduction, an anæsthetic is given if necessary. If pain occurs, it is an indication for the fresh application of plaster. This very seldom happens.
2. *Absolute maintenance* of reduction by including joint above and below fracture.
3. *Better results* in consequence by avoiding deformity and loss of function.
4. In *compound* fractures, it diminishes discharge and pain, leading to quicker and more complete recovery, and fewer dressings—no fever.
5. It is *at once* the *best fitting*, most *rigid*, and most *accessible* splint. Thus lending itself to the treatment of compound injuries, massage, and clinical instruction.
6. Requires much less attention on the part of the surgeon or nurse, and in consequence relieves one from anxiety. One should not be lulled into security by painless condition of fracture but use X-Rays *often*, and if necessary re-apply in *ideal* position.
7. Much greater ease in *nursing*—especially in children —or violent patients.
8. Impossibility of patient doing himself any harm.
9. Earlier convalescence induced by getting patients up in plaster to walk about.
10. It effects an important economy to the state and individual by saving time in treatment, and in hospital cases saves hospital funds.

As regards the disadvantages of this method some are theoretical and the rest apply to plaster generally. The

one disadvantage I recognise is that when much *swelling* is present before the case is seen, this subsides so rapidly in primary plaster one must apply a new splint in a few days. The argument most frequently urged against this method is the fear of gangrene—from swelling. Now it has been my experience, and I venture to say that of all who have given it a fair trial, that there is no more rapid way of reducing swelling. And even if a new splint be required in a few days, surely to have tided your patient painlessly over the most painful days of his suffering is something worth accomplishing.

There are many other conditions besides fractures in which this method is applicable. In my own practice I may mention the following :—

1. Operation on bone (equivalent to compound fracture). Excisions of hip, knee, elbow, wrist, in fact all excisions—or erasions—septic arthritis.
2. Wiring fract. patella.
3. Wiring fract. litro femur, with rupture popliteal artery.
4. Dislocations—simple and compound.
5. After tenotomics.
6. Synorites of knee, elbow, any joint in combination with
7. Ruptured ligaments extensive or slight.
8. Sprains.
9. Cure of wounds involving nerve or muscle section.
10. Ulcers over movable skin.

In conclusion, I must express my indebtedness to my friend and assistant Dr. Robert E. Holohan for all the assistance he has given me in applying this mode of treatment, during the last four years.

And I must also allude to the highly ingenious apparatus (shown in lantern slides) he has devised for the application of plaster in fractures of the femur ; and which I have invariably used for its primary application in such cases.

A CASE OF TRIGEMINAL NEURALGIA AND EXCISION OF THE GASSERIAN GANGLION.

By T. E. Gordon, M.B., F.R.C.S.I.;
Surgeon to the Adelaide Hospital.

An operation for the removal of the gasserian ganglion has not, so far as I know, been previously reported at the Academy. It is an operation possessing many points of interest and difficulty; its results are eminently satisfactory. These things being so I need not apologise for asking your attention to the history of the present case.

History of case before operation.—The patient was first attended by Dr. Cope, who sent her to the Adelaide Hospital to be under the care of Dr. Wallace Beatty. The following is Dr. Beatty's account of the case:—

Mrs. R., aged 63, is a small delicate-looking woman. Her family history revealed nothing of importance. She said she had always been of a nervous temperament, and had in her life much worry and anxiety. The first attack of neuralgia came on suddenly eight years ago, when she was coming down stairs and made her shriek with pain. It lasted a few minutes. It began in the left side of the upper lip and cheek and spread to the temple. Its character was as if a knitting-needle was bored into her left temple and turned round. The second attack occurred on the following day. Fresh attacks followed; at first there might be weeks interval between the paroxysms; she noticed that they were not so frequent in the summer time till this year. At present the attacks are very violent and frequent, coming on every ten minutes or so, and lasting about a minute or a fraction of this time, and they usually begin in the left side of the head,

the temporal and fore part of the parietal regions, but sometimes in the face. The paroxysms are most severe at night, giving her fearful nightmares and awakening her. The pain was on one occasion so severe and maddening that she attempted to kill herself with a razor, and was only prevented by her daughter coming into the room and arresting her in the act of suicide. The woman was in a pitiable state when she presented herself for admission to the hospital. She was some weeks in the hospital before surgical treatment was adopted. During this time she had to be given repeatedly hypodermic injections of morphine. The paroxysms of pain were excited in many ways in addition to coming on spontaneously. Thus moving of the jaws in mastication, the effort of speaking, the entrance of a person into the ward brought on a paroxysm. All the branches of the left trigeminal nerve seem to have been effected from time to time, except the lingual. At one time, when pain was severes, he noticed an increase of saliva, but this was not a constant or pronounced symptom. Tears would flow occasionally from the left eye. Tender points were present in different places. All her teeth had been extracted without relief. There was no anæsthesia. Taste was normal. The heart and lungs were normal. There was a little albumen in the urine, but no tube casts. The pulse was of low tension, about 80. She told me she thought the only cure was to kill her.

This is a sketch of her past condition up to the time I handed her over to Mr. Gordon.

This case may be regarded as a typical example of major trigeminal neuralgia. The woman in the later period of middle life, the almost sudden and causeless onset, the paroxysms of pain at first separated by considerable intervals but later occurring every day, and in response to the most trifling stimuli, all her teeth extracted in the vain hope of relief, her life made scarcely endurable by hypodermic injections of morphia, in all this the patient but repeats the history of other victims of this disease. Not the least pitiless aspect

of these cases is the absence of any tendency of the disease to shorten life. As the pain becomes greater and frequent almost to be continuous the patient resorts to increasing doses of hypnotics, and as a result of this and the prolonged suffering develops a melancholic insanity, or obtains in suicide a relief from a hell of torture. I hope you will not think the picture overdrawn ; the present case is, as I have said, but a repetition of the history of many others, and if any think the description an exaggertion they have not met with the disease under consideration, and they are not in a position to discuss the ethics of the operation for its cure. Drug treatment may give some relief, but it is almost certain to fail in the end and, so the case comes under the care of a surgeon. It is unnecessary to draw attention to all the operations performed for the cure of this disease. I think the majority of surgeons are satisfied that all ordinary neurectomies are likely to fail. The pain disappears of course after the neurectomy, but generally returns in two or three years. It is rather more than ten years since Horsley for the first time excised the gasserian ganglion. This operation is now regarded by many as the only operation to be recommended in cases of true major neuralgia of the fifth nerve.

Before describing the steps of the operation let me, as briefly as possible, recall to your mind the general anatomy of this nerve.

Anatomy of the fifth nerve.—In a dissection of the middle cranial fossa the gasserian ganglion is found lying near the apex of the petrous bone. Its large sensory root is seen entering this region under the margin of the tentorium cerebelli and ending in the ganglion. Springing from the front of the ganglion we find the three main divisions of the nerve. The first of these divisions, the ophthalmic, lies most internal and passes to its distribution through the sphenoidal fissure.

This distribution includes the eyeball and the skin of part of the nose, and all the fore part of the scalp. The second, or superior maxillary division, is seen leaving the mid cranial fossa by passing through the foramen rotundum. In addition to supplying the skin of the face, and the mucous membrane of the nose and roof of the mouth, this nerve, it is of special interest to remember, supplies the teeth of the upper jaw. The third, or inferior maxillary division, leaving the cranium by way of the foramen ovale, supplies the lower teeth. Tri-facial neuralgia probably never originates in the area of the ophthalmic division and this is significant, relative to the pathology of the affection, for this division alone has no part in supplying the teeth of either jaw. The inferior division has also within its area the mucous membrane of the floor of the mouth and the tongue and a wide cutaneous area (auriculo-temporal). The lingual branch has a special interest seeing that it carries within it the fibres of the chordal tympani, the nerve of taste for the front of the tongue. I may further remind you of the motor element in this third division for the supply of the muscles of mastication. It is remarkable how slight is the inconvenience caused by the destruction of this motor nerve.

If we follow the large sensory root under the tentorium into the posterior fossa of the skull it will be seen to pass to its, so-called, superficial origin at the side of the pons. In transverse sections of this part of the brain the sensory root is seen traversing the fibres of the middle cerebellar peduncle to reach its nucleus, which is placed outside that of the motor root. The greater part of the sensory root does not, however, end here, but passes downwards and can still be clearly seen in sections where the decussating pyramids shew that the level is near the lower end of the medulla.

Now it is all-important—and from our present point of view—to bear in mind that the term deep *origin* is misleading

In a Golgi preparation the fibres of this spinal root of the fifth nerve will be seen to end as free aborisations about the cells of the nucleus, but to be in no sense, processes of these cells. This nucleus is then to be regarded rather as the end than the origin of the nerve. The fibres to which the cells do give origin belong to a higher system and may be seen (in such a Golgi preparation as we are speaking of) sweeping across the medulla to reach a cortical path on the opposite side of the raphé. To find the true origin of the sensory fibres of the fifth nerve we must, as in the case of the posterior spinal roots, look outside the central nervous axis and we have it in the gasserian ganglion which is the homologue of the ganglion of the posterior nerve root. The cells of the gasserian ganglion are the genetic origin of the fibres and they are also the trophic centre, for it has been shown that if the ganglion be destroyed all the fibres degenerate both peripherally and centrally; the nerve is blotted out of existence. Now in this we have the theoretical basis of the operation we are about to consider. If recurrence of pain after neurectomy is due to regeneration of nerve fibres, excision of the ganglion will make such regeneration impossible and cure ought to be permanent. Should recurrence occur under such circumstances, it must be due to disease involving these higher neurones which we casually noticed a moment ago. Horsley and Krause, both writing recently, state that so far they have had no case of return of neuralgia after complete excision of the ganglion.

The operation.—The operation I elected to perform is that known as the Hartley-Krause operation. In this an opening is made in the temporal region of the skull; the brain and dura mater are together raised from the floor of the cranium as far as the points of exit of the second and third divisions of the fifth nerve; the space of Meckel is opened thus exposing nerves and ganglion; finally the nerves are

divided and the ganglion with its large sensory root removed. We may conveniently recognise four stages in the operation. In the *first stage* a large flap is turned down more or less horse-shoe shaped, and including a large part of the temporal muscle An opening is then made in the skull with a medium-sized trephine and this opening is enlarged as much as necessary with some form of forceps or rongeur (I used Horsley's prismatic bone forceps). The removal of bone should be ample, and in particular the bone should be clipped away well down to the base of the mid-cranial fossa. The attempt to preserve a bone flap is inadvisable, for it prolongs the operation and has been shown to be unnecessary. I had some difficulty in this stage of my operation owing to the presence of a bony canal for the middle meningeal artery in the forepart of the trephine area. The artery was necessarily torn but the bleeding was easily arrested by a plug of Horsley's aseptic wax. In the *second stage* the dura is raised from the mid-cranial fossa as far as the points of exit of the two lower divisions of the nerve. One knows when these points are reached by recognising two points of fixation of the dura. These constitute an important guide. That which demands all attention during this stage is hæmorrhage—more or loss profuse, continuous venous oozing which obscures everything. In the experience of some this bleeding has proved uncontrollable and it has been necessary to postpone the subsequent steps of the operation for several days, leaving meantime a gauze plug in the wound. Such experience is fortunately exceptional. As a rule, assiduous sponging with sterile pledges of gauze and plugging of the foramina (particularly the foramen spinosum and foramen ovale) suffice to completely arrest the hæmorrhage. One naturally thinks here of a preliminary ligature of the external carotid artery. Horsley is emphatic in condemning this as a routine practice, and as a matter of

fact plugging the foramen spinosum (thus controlling the vascular area of the middle meningeal artery) and plugging the foramen ovale (which will arrest the venous regurgitant bleeding from the pterygoid plexus) will do all that ligature of the external carotid could do. This ligature obviously could not influence bleeding form torn tributaries of the cavernous sinus.

The *third stage* includes the opening up of Meckel's space and the complete exposure of the nerves and ganglion. This space is opened by an incision through the dura just where the nerves are leaving the skull, and by a division of the arch of dura which passes from one of the openings to the other. Before discussing the details of this stage I wish to draw attention to certain anatomical relations.

The gasserian ganglion lies as we have seen at the apex of the petrous bone. The bone underlying it is extremely thin, and there may indeed be only a layer of fibrous tissue separating the ganglion from the internal carotid artery. On the inner side the sixth nerve is a specially close relation and has often been accidently injured. The very intimate relation of the cavernous sinus to the ganglion and the ophthalmic division is well seen in a coronal section of a frozen head. The same section gives an idea of the depth at which the ganglion is placed, and thus shows to what extent the brain must be retracted during the progress of the operation. A knowledge of the position of the foramen spinosum is important, for it may be necessary to plug it when the field of operation is obscured in blood. It generally lies about half an inch behind, and to the outer side of the foramen ovale.

We now return to the operation and suppose the space of Meckel opened, and ganglion and nerves exposed. The middle meningeal artery is not necessarily divided during this stage, but on the whole it seems better to do so, with a

view to getting as much room as possible. At this point it is necessary to decide whether one will remove the whole ganglion with the sensory root or merely tear away the outer part which belongs to the second and third divisions. I only removed the outer part, but I will, in future, endeavour to effect a complete excision, notwithstanding extra risk, in order to insure against recurrence of the neuralgia. To expose the ganglion for this complete excision it is important, as Cushing has indicated, to divide a fibrous layer which remains covering the ganglion after the general reflection of dura has been accomplished. This being done, one must next free the ganglion from its surroundings, beginning on the outer side.

This brings us to the *fourth and final stage* of the operation in which the nerves are divided close to their points of exit from the skull and then freed by careful blunt dissection up to the ganglion, and this latter then removed by evulsion. If the evulsion is properly done the sensory root will probably tear away from the side of the pons. In carrying out these steps of the operation the cavernous sinus is ever before the operator's mind and it is very liable to injury despite all care. It is, however, satisfactory to know that in those cases where the sinus has been injured the hæmorrhage has been readily controlled by pressure and no ultimate harm has resulted. A fear of sloughing of the cornea need not deter one from performing this complete operation. It is quite a rare complication, and when it does occur is not due to mere cutting off of nervous connections. This has been definitely proved by experiments. This unfortunate sequel is due to irritation and implies generally a basal meningitis, or, in other words, sepsis.

Finally the plugs are removed and the wound closed, but with a drain at its lower part.

I have given an account of what I believe to be the more

important features of this operation. It is obviously an operation attended with much difficulty—difficulty, however, which can to a great extent be met by acquiring in the first instance an accurate knowledge of the anatomy of the middle cranial fossa. It is equally apparent that there are dangers attending it, and here it is encouraging to learn the low mortality of the operation in the experience of Horsley and Krause. Horsley, in 1901, recorded twenty-two operations with only two deaths ; Krause in the same year, gave the results of twenty-five excisions of the ganglion with three deaths.

In some cases there have occurred after-symptoms of brain injury, such as aphasia and ocular palsies resulting from accidental nerve lesions, but these have generally been transient only. In the case of my patient there occurred a partial third nerve paralysis which disappeared in a short time. I saw this patient recently (about eight months after the operation), and found her in good health and entirely free from her neuralgia. The scar is very slight and the hair, having grown, conceals the depression.

In conclusion, let me ask you, before giving expression to an opinion on the merits of the operation, to bear in mind the gravity of the disease for which it is undertaken—the pain of maximum severity—the intervals of freedom becoming progressively shorter until in the end the suffering is continuous. Further, remember that, with no hope of natural cure, there is a strong tendency to melancholic insanity, and attempted suicide is so frequent as to be given by Krause as one of the symptoms of the disease. On the other hand remember that, if the operation is successfully performed, there is every reason to believe that the cure will be permanent.

TRAUMATIC ANEURYSM OF THE LEFT SUBCLAVIAN ARTERY PRODUCED BY FRACTURE OF THE CLAVICLE.

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Aneurysm of the subclavian artery, from its comparative rarity, always possesses a certain degree of interest. When that aneurysm is the result of a fracture of the clavicle it becomes at once a condition of exceeding rarity, consequently this fact renders an apology from me for bringing the notes of the following case and some remarks on the complications of fracture of the clavicle before the members of this Section of the Academy quite unnecessary.

M. J., a pensioner, æt. 62 years, was admitted into the Meath Hospital under my care on October 13th, 1902. His history, prior to September 28th, that is, until a fortnight before admission, was that of a healthy man, his only sickness being a few attacks of malaria. There was no history of syphilis, and before his accident there had never been anything wrong with the arm or shoulder.

On the evening of September 28th, when stepping off a dray he slipped and fell outwards on his left shoulder. Next day, notwithstanding the fact that his shoulder was swollen and paining him considerably he went to his work which consisted in wheeling gravel in a wheelbarrow, but on the second day, on account of the pain, he was unable to work and came to the Meath Hospital, where the resident pupil on duty treated him in the ordinary way for a fractured collar-bone. The swelling was noticed, but thought to be the result of using his arm freely for almost 48 hours after fracturing the clavicle.

On October 13th I saw him, and feeling pulsation which was indeed distinctly visible in the swelling, had him admitted at once into hospital. On examination the swelling was seen to chiefly occupy the lower part of the left posterior triangle of the neck, but it extended forwards underneath the sternomastoid muscle and downwards below the clavicle overlapping the broken fragments. It was most prominent just at the site of the fracture at which point the coverings were very thin and the pulsation most distinct. The tumour felt fairly hard all over except just at its most prominent point, where it was soft and fluctuated distinctly. A loud bruit was easily heard all over it, and my medical colleagues were of the opinion that there was a diastolic aortic murmur. There were no evidences of any impediment of the venous return, but the patient complained of pain, tingling and numbness down the arm and in the hand. There was no loss of power in the hand or forearm. The radial pulse on the affected side was much smaller than on the right side. There were some evidences of general atheroma, but the urine was free from albumen. My colleague, Mr. Lane Joynt, kindly took a skiagram for me which shows something of the outline of the tumour as well as the interesting condition of the broken fragments. A spiculum of bone is distinctly seen projecting downwards at right angles from the inner end of the outer fragment. It was also noticed that the pulsation was not nearly so well marked in the sitting as in the recumbent position, while in the upright position it could not be detected at all, though the bruit could be heard in this position, but only faintly. The diagnosis was that of aneurysm of the subclavian, produced by the spiculum of bone seen in the skiagram, projecting towards the vessel.

The treatment for the next fortnight consisted in absolute rest, restricted diet, and iodide of potassium, but at the end of this time as the aneurysm was only increasing in size and threatening to rupture or suppurate (for the skin over its most prominent part, and for some distance around, had become red and odematous), it was decided to endeavour to place a temporary ligature on the first stage of the subclavian and then open the sac, turn out the

clots and deal directly with the site of the injury. To do this an incision was made along the inner third of the clavicle as far as the sterno-clavicular articulation, another incision was carried from this point upwards along the inner border of the sterno-mastoid for about 2½ inches, the flap thus marked out being reflected outwards. With a wire saw the clavicle was divided about two inches from its inner end, and the inner portion resected.

A very long, and I may say dangerous dissection, in a space full of important structures, and considerably diminished by the encroachment of the now forcibly pulsating, thin-walled tumour, failed to distinctly expose the first stage of the artery. Wound of the vertebral vein giving rise to alarming hæmorrhage for a moment or two put an end to any further attempt to secure the artery in this stage. Gauze packing arrested the hæmorrhage from the vertebral vein. Three courses were now open to adoption. The first was to send the patient back to bed to die—a course which certainly did not appeal to me. The second was to amputate at the shoulder joint, and then follow up the axillary artery and hope in this way to reach the site of injury, but I must say it did not seem to offer any bright prospect. The last was to open up the sac, turn out the clots, and make an attempt to secure the injured vessel. Before doing this the portion of the clavicle corresponding to the middle third of the bone was removed so that direct proximal pressure might possibly be applied from without on the vessel while the clots were being turned out. The tumour was then freely incised and the clots turned out. The fingers were quickly pushed downwards in the direction of the artery which was grasped by the thumb and index finger, thus arresting the gush of blood until proximal pressure got the artery controlled. The place was then sponged clean of blood and clots after which the artery could be easily seen lying at the bottom, with a small opening in its upper and anterior aspect. The opening would have admitted a large sized knitting-needle, and seemed to be about the middle of the third stage of the artery. There were no branches seen coming of this stage of the vessel. An attempt to pass an aneurysm needle round the vessel now

showed the vein to be firmly adherent, and as it was thought that any injury to the vein, necessitating its ligature also, in a patient so old and with diseased vessels would in all probability demand amputation, a procedure which would likely be fatal, it was decided to apply forceps to the vessel. One forceps was applied internal to the opening, one over the site of the opening and one external to it. Gauze was then packed into the space round the forceps so as to steady them. The inner part of the wound was closed with a small capillary drain in its inner angle. The shoulder and neck were enveloped in dressings and the patient put back to bed. The arm was supported on pillows and wrapped up in warm wool. The operation lasted over two and a quarter hours. The subsequent progress is easily told. The temperature never once rose above the normal for over three weeks, when it ran up due to an attack of malaria, but a few doses of quinine brought it down. The forceps were removed on the twelfth day after which the wound rapidly granulated up.

The patient is now walking about quite well. I regret to say he has not yet recovered complete use of his arm, but this I attribute mainly to defective blood supply to his muscles on account of the diseased arteries. He never complained of any pain in the arm or hand subsequent to the operation, and from the time he recovered consciousness after the anæsthetic seemed to have complete sensation. Power is gradually returning, for he can now flex and extend his fingers and wrist as well as flex the forearm upon the arm.

With regard to complications attending fracture of the clavicle all authorities express but one opinion, viz. :—"That they are rarely if ever seen." It certainly seems strange that such an immunity should exist when we reflect on the proximity of the subclavian artery and vein, the suprascapular artery, the apex of the lung, and the cords of the brachial plexus, and at the same time consider the amount of displacement of the fragments that we frequently see. So far as I have been able to learn from a perusal of the literature of

Fracture of Left Clavicle. Bony Spiculum wounding Subclavian Artery and producing Traumatic Aneurysm.

this subject any complications that have occasionally been observed have occurred chiefly in those cases in which the fracture was produce by direct violence—generally severe—such as the passage of a wheel of the cart over the shoulder, a railway smash, or due to lesions produced by a rifle bullet. In these latter cases complications have been attributed rather to the bullet than to the fragments of the broken bone. It has been furthermore observed that some of these cases which were carefully examined *post-mortem* had also a fracture of the first rib or upper three or four ribs of which the first was one. The complications in these cases were mainly attributed to the fracture of the ribs and not to the fracture of the clavicle.

The neighbouring nerves have been injured at the time of the production of the fracture or have been subsequently implicated in the callus.

Stanley Boyd[1] makes the statement that several cases of injury to the brachial plexus have been recorded.

Jonathan Hutchinson,[2] senior, has noted hyperæmia and sometimes sweating of the same side of the head and neck with a rise of temperature of 2^0 or 3^0 F.; injection of the conjunctiva and lachrymation, flattening of the cornea from diminished intra-ocular tension ; contracted pupil and ptosis —phenomena obviously associated with injury of the sympathetic nerve in the back.

Gibson[3] reports a case of comminuted fracture in which the fragments were driven down behind the first rib, thus compressing the plexus, and causing paralysis and atrophy of the whole limb.

Delens[4] records a case in which the superabundant callus of a fractured clavicle exerted such pressure on the subclavian vessels and nerves as to impair the nutrition and muscular power of the limb. (In this case two ribs were also broken) Relief was afforded by resection.

Polaillon [5] mentions briefly a case of wound of one of the nerves of the brachial plexus, due to a bullet which produced fracture of the clavicle about its centre.

Jobert [6] relates four cases of fracture of the clavicle due to bullet wounds. In one of these a paralysis of the arm due to a lesion of the nerves of the brachial plexus was noticed. Two were uncomplicated, the other will be mentioned later under "injuries to vessels."

Stimson [7] says: "In a few reported cases symptoms indicating injury to the brachial plexus have appeared immediately or after an interval," and amongst other cases mentions one of his own reported in the *New York Medical Journal* for June 11th, 1887, in which extensive motor and sensory paralysis of the limb existed from the first although there was no recognizable displacement. Other cases are reported by Hassler,[8] Davis,[9] Mauclaire,[10] and Poirier.[11]

Hassler [8] obtained great relief for his patient by resection of the callus.

Davis [9] cured his patient by correcting the displacement by operation.

Mauclaire [10] brought about recovery by removing a splinter of bone three weeks after the injury.

Poirier [11] was compelled to amputate on account of the intolerable pain in the paralyzed limb. The fracture in Poirier's case was a comminuted one and due to direct violence.

As regard injuries to the vessels, Mr. Christopher Heath[12] —whom I must here thank for sending me a report of his case of aneurysm of the subclavian artery—details a case in which a patient was admitted under his care into University College Hospital, in September, 1878, with a comminuted fracture of the left clavicle, and a simple fracture of the six upper ribs on the same side, the result of being run over by a van.

On admission the radial pulse on the injured side was normal. He was then detained for fifteen days, during which severe bronchitis supervened. Subsequent to his discharge he attended regularly as an out-patient, but it was not until a month after his discharge that any undue pulsation was noticed. At this time he was re-admitted with a pulsatins tumour occupying the lower part of the left posterior triangle of the neck, and extending beneath the clavicle for a short distance. Distinct pulsation was felt over the clavicle, and a double bruit was heard, the systolic being the louder. The left radial pulse was much smaller than the right. There was some œdema of the left arm. There was no pain in the tumour, nor shooting sensations down the arm, but the arm was almost completely paralysed. On account of the rapid increase in size of the tumour, rupture of the sac appearing likely. and the useless condition of the arm from paralysis, Mr. Heath was led to perform amputation on November 4th. The wound seemed to run a favourable course, but the aneurysm continued to increase until on January 1st he introduced needles into the sac, which seemed to have the effect of leading to some consolidation in the contents. Death, however, took place on the 18th January, apparently from congestion of the lungs.

The autopsy showed a comminuted fracture of the clavicle about three inches and a half from its sternal end, *i.e.*, a little to the outer side of the centre, the innermost fragment overlapping the external for quite an inch.

The fracture was firmly united and at the lower margin, close to the communication between the artery and sac, a spiculum of bone projected. The sac of the aneurysm was closely adherent to the clavicle at the seat of fracture. The first rib was fractured close to the subclavian groove, the fracture being comminuted. The aperture of communication of the artery with the aneurysm was about one and a-half

inches from the thyroid axis, and measured about one-third of an inch, and was situated on the upper and anterior part of the vessel. The suprascapular artery could not be found. The subclavian vein was adherent to the sac and impervious beyond the clavicle.

Mr. Heath in his remarks said that it was impossible that the artery could have been punctured by the communited clavicle, for no immediate symptoms were observed, but it seemed probable that the vessel might have been bruised or stretched by the broken first rib and that a diseased spot in its coats might have yielded. There was a history of syphilis.

The aneurysm was distinctly saeculated which pointed to its traumatic origin, for spontaneous aneurysms of the subclavian are more generally fulsiform.

Mr. Anthony Boulby[13] has reported an extremely interesting case of injury to the subclavian artery produced by a fractured clavicle. I must here record my indebtedness to Mr. Boulby for courteously furnishing me with particulars as to where I should find the complete report of his case. It is that of a woman, aged 60 years, who was knocked down and run over in the street, sustaining thereby a fracture of several ribs as well as a fracture of the right clavicle. On admission into St. Bartholomew's Hospital it was noticed that, in addition to the injuries already mentioned the whole of the right upper extremity was cold, white, and pulseless. This condition continued until death, which took place next day, with the exception that the limb became warmer. There was at no time threatening of gangrene.

The autopsy showed that the right clavicle was fractured in its middle, and the first rib on the same side was broken close to its cartilage. The second part of the right subclavian artery for a distance of an inch or more was soft and flattened. On opening it, it was found that the arterial walls were healthy, and that the softened part of the artery was blocked

by clot. When this was washed out it was found that the lumen of the artery was completely occluded on the distal side of the softened area by the torn middle and internal coats and further examination showed the following conditions :— At the junction of the first and second portions of the subclavian the internal and middle coats had been cleanly divided as if by a narrow ligature, at right angles to the long axis of the vessel. At the cardiac side of this injury the coats had not retracted at all, nor had they curled in towards the lumen of the vessel. On the distal side, however, the inner and middle coats had been entirely stripped from the outer for a distance of more than an inch, and had been completely invaginated and thrust as a plug into the lumen of the artery beyond, so that the third part of the subclavian was plugged by the torn coats which ought to have lined the second part of the vessel, and on the rough inner surface of the second portion of the artery the blood had subsequently clotted.

Mr. Boulby's opinion was, that the artery must have been nipped up by the ends of the broken clavicle, which, being driven inwards and backwards, had been thrust with great violence into the vessel, in spite of the protection afforded by the scalenus anticus. He also concluded that after the division of the inner and middle coats, the bloodstream had made its way between the middle and external coats, and having stripped up the former, had thrust it, together with the inner coat, into the lumen of the vessel beyond, and had thus prevented the further passage of blood along the damaged trunk.

Evans [14] reports a case in which an aneurysm of the innominate artery was ascribed to a fracture of the right clavicle sustained by a patient—a sailor—many months before he came under surgical observation. The fracture was situated two inches from the sternum. *Post-mortem*

showed the inner fragment completely absorbed and the sternum eroded. The probabilities are that the aneurysm preceded the fracture and may indeed have predisposed to it.

Twyman [15] details a peculiar case which was that of a girl of 18 years, who, in falling off her horse, struck the stump of a tree fracturing the right clavicle at the junction of the outer and middle third. An aneurysm followed, supposed to be due to the penetration of the artery by a sharp spiculum of bone. When first seen the swelling was about half the size of a walnut, and just over the artery. On admission subsequently into hospital, the swelling extended for a distance of three and a-half inches—from the sterno-clavicular articulation, partly over-lapping the inner fragment, to a point one and one-half inches from the tip of the acromion. Upwards it reached as high as the fourth cervical vertebra, at a point midway between the spine and trachea. Inwards it reached sufficiently far to press upon the carotid vessels. Operation 31 days after the accident. The innominate was easily ligatured, being well pulled up by the tumour. The carotid was also ligatured one inch above its orgin. In 18 hours coma and death. The *post-mortem* showed wound of the first part of the subclavian at about one-sixth of an inch external and distal to the origin of the thyroid axis and vertebral arteries. The phrenic nerve was involved in the greatly condensed and thickened fibrous tissue forming the sac.

Ayres,[16] a surgeon in the U.S. Volunteers during the war of the Rebellion, reports the case of a scout who was shot, the ball striking the external third of the clavicle and fracturing it. The bullet passed obliqnely inwards and backwards and emerged behind near the spinal column, having opened the right pleural cavity, A month subsequently a severe hæmorrhage from the subclavian artery occurred, and the

vessel was promptly tied in the first part of its course. The hæmorrhage ceased immediately the ligature was drawn, but the patient sank and died in half an hour. The *post-mortem* showed that the bullet had fractured the clavicle in its outer third, and the first rib. It then opened the pleural cavity in its course, and made its exit on the left side of the spinal column fracturing the spines of the seventh and eighth cervical vertebrae. The hæmorrhage from the subclavian was due to a sharp spiculum of bone which had caused ulceration of the coats of the artery.

Mr. Edmund Souchon,[17] of New Orleans, in an exhaustive paper on "Operative Treatment of Aneurysms of the Third Portion of the Subclavian Artery," details fifteen cases of traumatic aneurysm, of which twelve ended fatally, and three recovered. Only one of the fifteen was stated as being due to a fractured clavicle. It was that of Twyman already referred to by me.

The subclavian vein is said to have been more frequently injured than the artery, but the following are the only cases of injury to the big vein trunks that I can find.

Most of us have heard of the late Sir Robert Peel dying from injury to the subclavian vein. The case will be found reported in the *Lancet* [18] of July 6th, 1850. There was a comminuted fracture of the left clavicle below which a swelling as large as the hand was found. The swelling pulsated synchronously with the contractions of the auricles of the heart. The condition was described as a "diffuse false venous aneurysm." One or two of the ribs of the left side were also fractured. The late Sir John Erichsen,[19] then Mr. Erichsen, delivered a clinical lecture at the University College Hospital, London, on a case of "Comminuted fracture of the clavicle with compression of the subclavian vein by one of the fragments." The fracture was due to direct violence. Gangrene of the arm susequently supervening

necessitated amputation at the shoulder joint. Death from pyæmia ended the scene. In that lecture Mr. Erichsen said: "The artery appears always to escape. I know of no case in which it has suffered if gunshot wounds be excluded." In the editions of his treatise on Surgery, published subsequent to the delivery of this lecture, mention is made of the cases of Heath and Boulby already detailed by me.

Manoury [20] relates an instance of injury to the subclavian vein. In this case the extravasation extended from the cheek to the fingers, with slight pulsation and systolic bruit in the supraclavicular region. The limb became paralysed and the radial pulse was lost, but reappeared on the second day. Manoury had to incise above the clavicle, but the patient died immediately from the entrance of air into the subclavian vein which was almost torn across.

Bonné [21] reports a case in which a fragment from a comminuted fracture of the clavicle produced somewhat serious symptoms by pressure upon the subclavian vein and adjacent nerves.

Jobert [22] relates a case in which the internal jugular vein was wounded by a fractured clavicle produced by a bullet. The patient succumbed in about twenty-four hours.

Ogle [23] reported a case in which the internal jugular vein was wounded, the specimen being in St. George's Hospital Museum. This case was that of a youth of 23 years of age, who, while standing under a tree during a thunderstorm, was struck by a falling branch and died immediately. The *post-mortem* demonstrated the nature of the lesion to have been a tear in the right internal jugular vein, a quarter of an inch above its junction with the subclavian to form the innominate. The opening would have admitted an ordinary pea.

Polaillon [24] said: "Wounds of the pleura and lung are not so rare as wounds of the vessels," and said he knew of

three examples. They were those of Vigarous, Velpeau, and Huguier.

Vigarous [25] was compelled to make incisions in order to relieve the embarrassment to respiration, and save his patient from death. The case was that of a carrier who had his left clavicle broken by the shaft of his cart, the fracture being an oblique one. The patient in an instant felt his chest, neck, and head become rapidly inflated, his eyes became closed up, and in a short time his head, neck, chest, and trunk are said to have acquired two and a half times their normal size. After examining the patient to discover the cause of the emphysema, Vigarous then reduced the fracture and immobilized the broken fragments, but as the emphysema, instead of diminishing only went from bad to worse, a large incision was made at the bottom of the neck. In three or four days the head, neck, and upper part of the chest had almost returned to their natural size, and at the end of eight days the emphysema had entirely disappeared.

In the cases of Velpeau[26] and Huguier[27] great care was taken by these surgeons to be quite certain that there was no rib fractured, and that the infiltration of the cellular tissue with air was the result only of a wound of the lung produced by a fragment of the broken clavicle.

Gibier [28] reports a case in which the acromial fragment wounded the lung, and produced emphysema. The patient recovered, but with non-union of the fracture.

Mercier [29] relates a similar case.

The only difficulty seems to be that of excluding fracture of one or more ribs which might have been the cause of the injury to the lung. In most of the cases referred to above the surgeons were not unmindful of this difficulty, and seemed to have endeavoured to exclude it.

While my communication up to this has been devoted

entirely to complications of a serious nature produced by fracture of the clavicle, I might now, by way of contrast, be permitted to mention the following curious and remarkable case in which fracture of the clavicle was supposed, in some mysterious way, to have cured a pre-existing aneurysm of the subclavian artery.

Dr. Harte,[30] who reports the case, gives the history as follows :—" The patient about a year ago noticed at the root of his neck, a large swelling, which pulsated and was of considerable size. He did not seek any medical advice for this. While descending a flight of stairs he tripped and fell, striking his shoulder and fracturing his clavicle. When admitted into hospital, a large pulsating expansile mass was seen corresponding to the position of the subclavian artery, while directly over that, and lost to a certain extent in the surrounding swelling, were the two ends of a fractured clavicle. On auscultation all the physical signs of an aneurysm were evident. Shortly after admission, there was considerable ecchymosis around the seat of injury, and the pulsation and bruit, with a well-marked radial pulse, still continued. Four days after the receipt of the injury attention was called to the fact that the pulsation had entirely ceased in the region of the injury. That a clot had formed was also evident from the increased density of the tumour. No attempt was made to correct the deformity in the clavicle. The only treatment consisted in rest on his back in bed with a small sand-bag resting on his shoulder. All evidences of pulsation completely disappeared, leaving only a clavicle united with some deformity."

Dupuytren[31] is quoted by Stimson, Hamilton, and several others, as having said he saw two or three cases of aneurysm of the subclavian artery, the result of fracture of the clavicle, but on carefully reading over his lecture on aneurysm I failed to see where any such mention was made,

and certainly no case was described by him in any of his lectures published in book form, either in the original or in the English translation.

There is a case reported by Jacquemier [32] in which an aneurysm of the arcomial branch of the acromio-thoracic artery followed a fracture of the clavicle produced by direct violence. It will thus be seen that so far as I have been able to discover in my perusal of the literature of this subject, in both French and English, I have only been able to find the following as complications of a fractured clavicle :—

Ten authentic cases of injury (immediate or remote) to the neighbouring nerves.

Four authentic cases of wounds of the subclavian artery. My own case makes the fifth.

Here I would point out that the others arose in connection with fractures produced by direct violence, and all terminated fatally, whereas mine arose from a fracture produced by indirect violence, and has, fortunately, ended in recovery.

One case of alleged injury to the innominate artery leading to the development of an innominate aneurysm. It is more than probable that the aneurysm existed prior to, and possibly may have predisposed to the production of the fracture.

Four cases of injury to the subclavian vein.

Two cases of injury to the internal jugular vein.

One case of aneurysm of the acromial branch of the acromio-thoracic axis of arteries, and five cases of wound of the lung associated with emphysema.

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SECTION OF OBSTETRICS.

SOME CASES OF TUBAL DISEASE TREATED BY OPERATION.

By E. H. Tweedy, F.R.C.P.I.;
Gynæcologist to Steevens' Hospital, Dublin.

The following cases of grave tubal disease which have comparatively recently been under my case and operated on by me in Steevens' Hospital, I consider worthy of publication. They each present features of interest, more especially from a diagnostic standpoint; and demonstrate some few of the conditions liable to be encountered when operating for the relief of symptoms induced by disease of the uterine adnexa.

Case 1 is an instance of tubal mole. The patient from whom it was removed was last unwell on March 17th, 1902. On April 14th she suffered from a flooding, and supposed herself to have miscarried. From that time on irregular hæmorrhages occurred until she came under my care five weeks later. On bimanual examination a large, retroverted uterus with softened cervix was felt, and an egg-shaped tumour lying to the left of this was palpated. On June 2nd the tube was removed, the uterus being at the same time stitched by its posterior wall to the peritoneum of the anterior abdominal wall. A section, kindly prepared for me by Dr. Earl, shows clearly the nature of the tumour. The tube had not ruptured. Neither did it contain any active elements of growth.

A case such as this demonstrates how very important it is to discover some means whereby we could distinguish between a dead and a living fœtus in tubal pregnancy. I am convinced that the cervix and lower uterine segment lose

much of their characteristic feel in the presence of a dead ovum in utero, but as to whether a similar change occurs with a tubal mole my experience does not permit me to say.

Case 2.—Pyosalpinx of tuberculous origin, chiefly interesting because of its accidental discovery. The patient from whom it was removed was a pale-faced, emaciated woman, æt. 27, married three years, sterile, who had suffered on three different occasions since marriage from peritonitis. She stated that the last attack —a very severe one—had occurred a few weeks before coming under my care in the early part of last September. On bimanual examination a cystic tumour, somewhat larger than the normal uterus, was felt in her right iliac region. The left tube was palpated, but neither it nor its corresponding ovary gave me the impression of being diseased. On September 10th I operated for the removal of the tumour, which I had fully made up my mind was the cause of all her suffering. This, however, proved to be a simple broad ligament cyst free from adhesions, or any other sign of inflammation. The thin and much drawn out tube lying on the top of the tumour was at the same time removed. On examining the other tube I found it thickened, bent on itself, and occluded at its abdominal mouth. This was unfolded, and then a probe was forced through its lumen, with a hope of correcting the sterility. Pus, however, welled up by the side of the probe, which necessitated the prompt excision of the tube. The microscopic specimen shows clearly its tuberculous origin.

Baldy states that normal tubes cannot, as a rule, be palpated, and with the experience of this case before us I am inclined to subscribe to the truth of this statement.

Case 3.—The third case on my list came under my care in Steevens' Hospital, last September. She suffered from a tumour situate in the left iliac region, very tender to the touch, and easily palpated above Poupart's ligament. She was married for some years, sterile, and gave a history of two previous attacks similiar to this one. She had a hectic temperature for the first week after admission, rising in the evening to 102° F., it fell each morning to

normal. During the second week it gradually subsided, and became normal at the end of fourteen days. The swelling in her side progressively decreased, and on October 9th, the day before operation, was felt by bimanual manipulation to be about the size of a small orange. The operation was undertaken only at the patient's urgent request, as she had shortly to sail for India, and feared a repetition of the inflammation. On opening the abdomen a thickened and much bent tube was removed which, when examined, showed no trace of purulent contents. A microscopic section of this demonstrated a small-celled infiltration, the origin of which could not be determined.

It is, I think, reasonable to conclude that this tube contained a considerable quantity of pus a short time before operation. There was no history of vaginal discharge, and the absence of adhesions between tube and intestines excluded the view that pus might have made its escape into the latter. It is, I think, difficult to account for the changed conditions here present in a manner other than that a rapid absorption of an acute abscess took place.

Case 4.—Mrs. R., æt. 29, married four years. Had twice suffered from peritonitis. The first attack six months after marriage. The second—a very severe one—occurred eighteen months ago. Her uterus was enlarged and firmly adherent in a retroverted position. The tubes did not appear enlarged, but their unelastic and brawny feel gave clear indication of disease. The woman suffered from a constant severe abdominal pain which a former curettage and free purging failed to alleviate. Operation, November 20th.—On opening the abdomen the omentum appeared firmly fixed to the anterior abdominal wall and bladder, On its under side the small intestines were adherent to it. Its separation was most difficult, and was finally accomplished by cutting it across. This enabled the intestines to be disentangled and the uterus to be reached. Before the latter could be brought forward it was necessary to drag the much-diseased left tube from

its bed of adhesion tissue and remove it. The ovary seemed fairly normal, and my first intention was to spare it. The free oozing, however, which took place from the adhesion bed necessitated its removal. The other ovary and tube were left behind, and the uterus fixed to the peritoneum of the anterior abdominal wall by one buried silkworm-gut suture. In consequence of the fat condition of her abdomen I was much exercised in my mind as to whether I should select the vaginal or abdominal routes for operation. I am pleased to say that the latter was finally selected.

This case demonstrates how much superior the abdominal route is to all others when dealing with a fixed retroversion.

The adherent omentum and intestines situate in front of the uterus would have rendered any other route abortive.

In conclusion, I have only to add that all these patients made an afebrile and uneventful recovery.

CLINICAL REPORT OF THE GYNÆCOLOGICAL DEPARTMENT OF THE ROTUNDA HOSPITAL, FOR THE YEAR ENDING NOVEMBER, 1902.

By R. D. Purefoy, M.D. (Dubl.), F.R.C.S.;
Master of the Hospital.

Amongst the cases illustrating diseased conditions of the external genitals recorded in my Report for the year ending November, 1902, there are none of any special rarity or calling for special notice. Eczema was met with twice—in one instance chiefly affecting the left labium; both patients were under forty years of age, and both appeared well at time of discharge from hospital. In most cases of eczema vulvæ strict attention to the condition of the vagina will be requisite to effect a cure; and in one very aggravated case recently under my care vaginal douches containing ichthyol, used several times daily, contributed largely to the patient's recovery. In three patients some degree of vaginismus was found; all were under thirty years of age; all were childless, though a few years married; in one there was a distinct history of syphilis, beginning with sores on external genitals; and in all the ovaries were prolapsed; and in all very marked improvement, if not cure, followed the use of measures suitable to the uterine and vaginal disease present. That there is a neurosis, evidenced by hyperæsthesia and spasm of the introitus, apart it may be from uterine and vaginal disease, cannot be doubted, notwithstanding Tait's denial of the fact.

Table No. I.—*List of Cases Treated.*

Disease	Total	Cured	Relieved	Not Relieved	Died	Remarks
Vulva—						
Vulvitis	7	6	1	—	—	
Eczema	2	2	—	—	—	
Labial cyst	1	1	—	—	—	
Vaginismus	3	2	1	—	—	
Perineum—						
Laceration, simple	46	44	—	—	—	
,, complete	7	7	—	—	—	
Rectum—						
Cancer	1	—	1	—	—	
Prolapse	1	1	—	—	—	
Urethra and Bladder:						
Cystitis	4	1	3	—	—	
V. V. fistula	—	—	—	—	—	
Caruncle	3	3	—	—	—	
Urethritis	4	3	—	—	—	
Urethral Calculus	1	1	—	—	—	
Vagina—						
Vaginitis	15	14	1	—	—	
Cysts	3	1	1	1	—	
Epithelioma	1	—	—	1	—	
Cystocele	9	7	1	1	—	
Rectocele	3	2	1	—	—	
Cervix—						
Erosions	36	30	6	—	—	
Hypertrophy	8	5	3	—	—	
Lacerations	34	32	2	—	—	
Epithelioma	7	1	—	6	—	
Cysts	5	5	—	—	—	
Polypus	7	7	—	—	—	
Uterus Corpus—						
Rudimentary	1	—	—	—	—	
Infantile	1	—	—	—	—	
Uterus septus	1	—	—	—	—	
Pregnancy	24	—	—	—	—	
Abortion	14	14	—	—	—	

TABLE No. I.—*List of Cases Treated.—con.*

DISEASE	Total	Cured	Relieved	Not Relieved	Died	REMARKS
UTERUS CORPUS—*con.*						
Endometritis	10	84	26	—	—	
Retroversion	53	9	44	—	—	Pessary used in 24 cases
Retroflexion	7	—	7	—	—	
Acute anteflexion	27	16	11	—	—	
Polypus	6	6	—	—	—	
Carcinoma	14	3	—	10	1	
Procidentia	2	1	—	—	—	Both pregnant; one refnsed treatment
Prolapse	?	—	—	—	—	
Subinvolution	37	34	3	—	—	
Fibroids	21	7	11	—	1	Two refused treatment
Gravid retroversion	5	5	—	—	—	
Fixed retroversion	11	—	11	—	—	
FALLOPIAN TUBES—						
Salpingitis	6	—	6	—	—	
Pyosalpinx	3	1	2	—	—	
Tubal pregnancy	5	4	1	—	—	
OVARIES—						
Cystic	17	—	—	—	—	
Cysts	13	13	—	—	—	
Dermoids	3	3	—	—	—	
Prolapse	41	—	—	—	—	
Oöphoritis	3	—	3	—	—	
Carcinoma	1	—	—	1	—	
MISCELLANEOUS—						
Perimetritis	20	3	17	—	—	
Parametritis	6	4	1	—	1	
Hernia	?	—	—	—	—	
Phantom tumour	1	—	—	—	—	
Sapræmia	3	3	—	—	—	
Mastitis	1	1	—	—	—	
Hæmatocele	2	2	—	—	—	

Table No. II.—*Operations.*

Alexander Adams' Operation	1
Colporrhaphy	11
Colpoperineorrhaphy	3
Submucous Myomata	6
Vesico-vaginal Fistula	2
Posterior Division of Cervix	7
Removal of Caruncle	3
,, Cervical Polypi	7
,, ,, Cysts	5
Perineorrhaphy (Lawson Tait)	51
Emmet's Trachelorrhaphy	25
Schröder's ,, ...	10
Saenger's ,, ...	1
Colpotomy	1
Vaginal Hysterectomy	1
Abdominal Hysterectomy for Fibroids	8
,, ,, for Cancer	5
Ovariotomy	13
Salpingo-oöphorectomy	3
Cœliotomy for Tubal Pregnancy	5
,, Exploratory	7
Removal of Ureteral Calculus	1
Hysterectomy for Cancer	5

TABLE No. III.—*Ventral Cœliotomy; Hysterectomy (for Fibroids)*

No.	Name	Age	—	DISEASE	Result	REMARKS
11135	E. O'R.	36	Single	Fibroid uterus .	Cured	Uterus uniformly enlarged, reaching to umbilicus.
11215	E. B.	42	Married	Multiple interstitial fibroid	,,	Cervix so elongated as to protrude from vulva; uterus reaching above nearly to umbilicus.
11255	A. S.	30	—	Uterine fibroid .	,,	Large fibroid lying in Douglas's space.
11294	M. W.	45	—	,, .	,,	Tumour growing from fundus uteri.
11340	E. A.	52	Married	Fibroid uterus .	Died	Two small perforations in wall of bowel, possibly caused by clamps used to secure veins; uterus size of seven months' pregnancy.
11345	M. M'D.	40	—	,, .	Cured	———
11383	K. M'C.	43	—	Uterine fibroid .	,,	Tumour size of cocoa nut, chiefly involving posterior aspect of uterus.
11524	W. M.	40	—	Three large fibroids, reaching to hypochondrium	,,	Parietes 3 inches thick; supra-vaginal amputation.

In the first of the cases in Table III. the patient, a healthy unmarried woman, was unaware of the existence of the uterine enlargement, and sought advice solely on account of retention of urine, which occurred suddenly, owing to the uterus becoming lodged in brim of pelvis. In the second, remarkable elongation of vaginal cervix was present, and probably preceded the growths of the fibroids. In the third, the appendages of the right side were not removed ; on the left side an abnormal branch of uterine artery required separate ligature. In the fourth, there was so much difficulty in opening anterior vaginal fornix that I gave up the attempt, and a small portion of cervix was left, through which, to my great surprise, I found, some weeks afterwards, two of the vaginal ligatures protruded. In the fifth, the veins were unusually large and numerous, and I fear that in applying clamps to control the bleeding from them the lesions, subsequently found in the bowel, and which caused death, must have occurred. In the sixth case, some days after the abdominal stitches had been removed, a very unusual secondary growth developed rapidly near the upper end of the cicatrix, and in a week formed a projection, two inches in height, of a mushroom shape. It was removed by an elastic ligature, being quite insensitive, and was pronounced by Dr. Earl and Dr. Neville to be organised blood-clot. More than a year ago, under exactly similar conditions of time and place, a patient of mine developed such a growth after ovariotomy. Bland Sutton avers that these growths have an epithelial origin ; but my cases show that this statement requires qualification. In most of these cases I derived considerable assistance in opening the vaginal fornices from the use of the forceps which I have figured in a former report.

HYSTERECTOMY FOR CANCER.

Case 1.—E. C., single, aged sixty, had been for more than a year troubled with severe uterine bleeding, with much pain in

back and left side. The body of uterus was palpably enlarged and bulging on left side, apparently from the presence of a fibroid, and the cervical canal gaping. When dilatation was nearly completed I had the great misfortune to perforate the uterine wall on right side; and as the condition of the endometrium and the history rendered the existence of cancer very probable, I removed the uterus by the abdominal route as soon as the patient could be prepared. The patient at first did well; symptoms of sepsis developed, and death occurred within three days. The peritoneal flaps lay in such good apposition that they were not sutured; and I deeply regret that I did not, at the time of operation, provide for vaginal drainage.

Case 2.—M. A. K., aged forty, twenty-one years married; suffering from excavating carcinoma of cervix; body not enlarged; some thickening in both broad ligaments, especially the right. The diseased tissue having been removed as thoroughly as possible the thermo-cautery was applied, and abdominal hysterectomy performed. Satisfactory convalescence, somewhat delayed by troublesome vomiting and some suppuration in course of abdominal wound.

Case 3.—M. N., forty-two, twenty-one years married, was afflicted with a similar condition of uterus as in the foregoing case, and, in addition, two ovarian cysts. One of the cysts removed furnishes a beautiful example of Rokitansky's tumour, and is now preserved in the Hospital Museum. In this case some swelling at left side, suggestive of extension to the broad ligament, was found at the time of operation to consist of adherent omentum, Fallopian tube, and coil of intestine. Convalescence very favourable.

Case 4.—E. C., aged thirty-eight, seventeen years married, two children; carcinoma of cervix and vaginal root. A small patch of the disease also on posterior vaginal wall, where extremity of cervix lay in contact with it. Abdominal hysterectomy, and good recovery.

Case 5.—H. F., twenty years married, aged fifty-eight, for three years had been troubled with offensive discharge, and had

been curetted three times. When she came under my observation the cervix appeared healthy, but the uterus was distinctly enlarged and retroverted; cavity four inches. The scrapings obtained with curette indicated malignant adenoma; and, as the introitus vaginæ was roomy and uterus mobile, though some adhesions existed posteriorly, I performed vaginal hysterectomy, and uneventful recovery followed. The slow advance of the disease in this case is worthy of remark, and especially so the results of Mr. Neville's examination of the uterus, the report of which follows :—

"*Macroscopic Examination.*—For pathological examination and for preservation of the specimen a complete bilateral hemisection of the uterus as removed was made. This section showed that there was a well-marked anteflexion, the measurements of the different parts being as follows :—Length of body, 6.5 c.m.; length of cervix, 4 c.m.; greatest width of body, 6 c.m. As anticipated, the macroscopically apparent disease appeared limited quite sharply to the endometrium of the body, which averaged about 1 c.m. in thickness, resting upon a clean, unbroken line of muscular wall.

"The cervical canal appears healthy, the arbor vitæ arrangement of its lining membrane being particularly well marked. Careful examination of the cervical walls show a few cysts, besides traces of some other pathological condition, but there is nowhere any superfical roughening or loss of substance.

"*Microscopic Examination* completely confirms the diagnosis made from curettings. The thickened corporeal endometrium is found to consist entirely of a malignant adeno-papillomatous growth, which shows very characteristically the typical form of that cancer. It consists of main stems of connective tissue stroma, from which secondary stems arise, these terminating in fine fimbriæ, covered by many layers of epithelium. This growth involves the endometrium of the entire body of the uterus. It nowhere penetrates the muscular walls, and stops short suddenly at the level of the internal os.

"Sections through the breadth of the cervical tissue show that

here we have an unsuspected—and in no way outwardly evidenced—adeno-carcinoma occupying the depths of its muscular tissue. The specimen is therefore of pathological interest as presenting two typical forms of cancer—(1) an adeno-papilloma confined strictly to the endometrium of the body, and (2) an adeno-carcinoma confined equally strictly to the muscular portion the cervix."

TABLE No. IV.—*Salpingo-oöphorectomy.*

No.	Name	Age	Disease	Operation	Result	REMARKS
—	M. O'B.	22	Pyosalpinx -	Left	Cured	Gauze drain used
11247	M. P.	27	Ovarian cyst -	Left	,,	*See* under "Tubal Pregnancy"
11384	N. C.	23	Uterus absent -	R. & L.	,,	

SALPINGO-OÖPHORECTOMY.

In the case of M. O'B. the pus tube was ruptured in process of removal, and, after careful cleansing, a gauze drain was inserted for twenty-four hours. The clinical history, as also the local conditions in the case of M. P., suggested tubal pregnancy; and at time of operation a slightly gaping condition of the tubal ostium, as well as some clots close by, lent probability to the diagnosis, but the small ovarian cyst, also present and bound up with the tube, may have caused the above-noted state of the tube and favoured a reflux of menstrual blood.

In the case of N. C. the uterus was represented by a small nodule of firm tissue, not bigger than a hazel nut; the tubes were long, attenuated, and cord-like, but both ovaries were unusually large and abounding in cysts. The menstrual molimen, recurring every four weeks, was attended with much suffering, shivering and distinct rise of pulse and temperature. Complete relief followed the operation.

TUBAL PREGNANCY.

Case 1.—M. J. B., aged twenty-eight, seven years married, four children, last menstruation occurred on September 20th. Admitted to hospital, 8 o'clock p.m., on October 1st, 1901, in a condition of great prostration; rapid, feeble pulse; extreme tenderness of belly and some bleeding. During the two preceding days severe attacks of abdominal pain, attended with faintness and vomiting, had occurred. Restorative measures were used for a few days, and, during this time, a piece of decidua escaped from the vagina. The uterus, on examination, was found normal in position; body enlarged, cervix soft, and a swelling, size of a lemon lay to the left of uterus. A week after her admission cœliotomy was performed. Above and behind uterus there was a mass the size of a fist, firmly adherent to rectum, consisting of the dilated and ruptured tube and firm blood-clot, containing an ovum, about as large as a walnut. Clots in large quantity lay in and around pelvis and were carefully removed, the peritoneal cavity flushed with saline solution, and the wound closed with a peritoneal continuous silk suture and silkworm-gut through parietes. Good recovery.

CO-EXISTING UTERINE AND TUBAL GESTATION.

Case 2.—R. B., aged twenty-three, four years married. Her two former pregnancies had ended prematurely. Had been at various times under the care of two former Presidents and a Secretary of our Section, who suggested an operation. Some months before illness to be now described consulted me, suffering from pelvic peritonitis and menorrhagia. In October, 1901, menstruation was due on the 15th, but did not occur, and some days afterwards abdominal pains began to occur fitfully, attended with irregular slight bleedings. Nausea also, chiefly at night, and pain in breasts. On more than one occasion the abdominal pains were attended with faintness. While lying in bed micturition was sometimes difficult. On the 22nd of November I was asked to visit her; the uterus was found somewhat enlarged and pushed to the right by a soft mass lying in Douglas's space, but

reaching above pelvic brim, and having on its highest point a small sensitive body, causing an easily observed projection of abdominal wall. The cervix was soft and gaping. My diagnosis was sub-peritoneo-pelvic pregnancy. Dr. Carton expressed the opinion that it was an ordinary pregnancy, complicated by the presence, in addition, of a swelling, ovarian or otherwise. In the end both our opinions were justified. On opening the cœlom I found a considerable mass of blood-clot, investing and concealing the tube, and covered by a layer of peritoneum, evidently continuous with the posterior layer of left broad ligament. On the summit of the swelling was placed the left ovary, forming the projection already noted when examining the patient externally. The uterus was the size of a two and a-half months' pregnancy. The tube and adherent clots were removed, the peritoneal cavity washed out, and the abdomen closed. Some hours later the pulse became alarmingly rapid, but, as there were no other signs of bleeding, I attributed this, and no doubt correctly, to a small injection of morphin which had been given for the relief of pain. The subsequent convalescence was all that could be desired, but I regret to add the uterine pregnancy ended in an abortion a few weeks later. I have already, in a former Report, detailed a case of concurrent uterine and tubal pregnancy in which I operated successfully for the removal of the latter condition. The uterine pregnancy in that instance continued till the seventh month, *i.e.*, four months after the removal of the tubal gestation. The acceleration of pulse which sometimes follows the injection of morphin I have observed several times.

Case 3.—E. S., aged twenty-five, 3-para. On December 17, 1901, menstruation occurred ten days beyond the proper time, and during the next few weeks much pain and intermittent hæmorrhages took place ; for the relief of which her doctor in the country curetted her. On admission to hospital, January 30, the uterus was found of normal size, displaced to the right by a swelling at the left side, of tolerably firm consistence, and adherent to uterus. I operated on February 4, finding a considerable amount of fluid and clotted blood in cœlom, the left tube distended, the fimbriated

extremity surrounded by adherent clots. A hæmatoma in the ovary was turned out, and the cavity closed by a silk suture. Recovery uneventful.

Case 4.—M. P., described under the heading "Salpingo-oöphorectomy." The conditions present in the left tube were strongly suggestive of an early tubal abortion.

Case 5.—H. F., aged twenty-four, 2-para. Patient believed herself to be seven weeks pregnant, and on May 2, 1902, was attacked with very severe pain in lower belly, accompanied by slight uterine bleeding. These continued for some hours, and after an intermission of some days, recurred, the bleeding being then more profuse than on the first occasion. On admission to hospital, May 10, the uterus was found to be enlarged and displaced to the left by a swelling, which also occupied Douglas's space, extending nearly to the left side. At the operation, carried out shortly after, blood in some quantity was found free in abdominal cavity, and the right tube was ruptured. It was removed, the cavity flushed out and the operation completed as usual, and followed by good recovery.

It is worthy of note that these cases of tubal gestation were met with in young and parous women, in whose child-bearing no long pause had occurred, and who did not present the conditions which are so often mentioned as favouring the occurrence of extra-uterine pregnancy.

Alexander Adams' Operation.

This operation was performed on a married woman, 1-para who suffered much from backache and dysmenorrhœa, apparently due to a retroverted and somewhat adherent uterus. Under treatment these conditions underwent much improvement, and it was found possible to replace the uterus; but as a pessary was badly tolerated, I determined to try the effect of shortening the round ligaments by the above-named method. The structures in question were well developed and found without difficulty; but when convalescence was

established the change in the position of the uterus and the relief to the patient's sufferings were inconsiderable. A few months later we admitted a patient on whom Mr. Alexander had operated similarly five years ago. Since then she had been three times pregnant, and aborted each time at the third month. When under our observation the uterus was retroverted.

OVARIOTOMY.

In all of these, where it was practicable, I stripped peritoneum of the cyst enough to stitch over the end of pedicle. In the case of M. T., part of the parietal incision passed through omentum, too firmly adherent to be safely detached. A large cystic tumour was present at the time of delivery in the case of M. D., and six weeks subsequently its removal was undertaken, and effected without difficulty or bleeding. Very soon afterwards the pulse rose from 96 to 120, and continued at this rate for 13 hours, and gradually fell to 90, and remained quiet during convalescence. In the case of B. D., some weeks before her admission very severe abdominal pain occurred, with symptoms of peritonitis, and doubtless synchronised with the rupture of one of the dermoids. At the time of operation large quantities of gelatinous matter, evidently identical with the cyst contents, were found free in the cœlum. M. N. presented the very rare coincidence of double ovarian cysts with malignant disease of uterus, necessitating panhysterectomy as well as double ovariotomy. One of the cysts, as shown by the beautiful drawing executed by Dr. Paul Carton, is an example of the very rare tumour known as Rokitansky's. The other cyst was intraligamentous in growth. The uterine disease was excavating epithelioma of cervix, and was so advanced that the removal of the uterus by the vagina was impracticable. The patient was so prostrate at the conclusion of the operation that saline transfusion

TABLE No. V.—*Ovariotomy.*

No.	Name	Age	Disease	Operation	Result	Remarks
11115	M. G.	41	Cyst .	R.	Cured	
11119	M. D.	24	Dermoid .	L.	Cured	Patient has aortic and mitral murmurs.
11125	M. T.	31	Cyst .	R.	Cured	
11153	M. D.	29	Large Cyst .	R.	Cured	Pregnancy at term had ended 4 weeks before admission.
11176	B. D.	49	Double dermoids .	R. & L.	Cured	Closely simulated tubercular peritonitis.
11242	M. N.	42	Cysts .	R & L	Cured	One was an example of Rokitansky's tumour ; uterus removed at same time for epithelioma.
11304	E. T.	35	Dermoid .	R.	Cured	
11440	E. G.	34	Intraligamentous .	L.	Cured	
11467	R. K.	38	Intraligamentous .	R.	Cured	Omentum adherent to bladder.
11557	C. M.	40	Cyst . .	L.	Cured	Twisted pedicle.
11573	E. R.	56	Very large cyst .	—	Cured	
11601	J. T.	34	Suppurating dermoid	R.	Recovered	Tumour caused obstruction to delivery.

was carried out with much benefit, and a satisfactory convalescence followed. In the case of C. G., an ovarian cyst of moderate size had burrowed downwards in broad ligament, and so involved the side of uterus that its separation gave rise to troublesome bleeding from uterine wall, requiring several stitches to control it. J. T. was admitted to the Maternity on account of tumour occupying pelvis and obstructing delivery. Its consistence led me to regard it as a uterine fibroid which might best be dealt with at the time by pushing it out of pelvis. This was done, though with difficulty, and easy delivery followed. Very slight pyrexia was present during the puerperium, and the patient left the hospital promising to return in a week. Unfortunately more than two months elapsed before she did so, and her condition then of prostration and fever left little hope of saving life by any treatment. A few hours after her admission I opened the cœlom and found in it quantities of purulent fluid, flaky lymph, and hair, which had escaped from a suppurating dermoid on the right side, widely adherent to brim of pelvis and cæcum. The cyst wall and pedicle had been so altered by inflammation and suppuration that no proper pedicle was distinguishable, and after copious flushing the wound was closed, no exploration of the pelvis being possible, owing to the patient's condition. Several days later a swelling was found in Douglas's space and opened per vaginam. Six weeks later the patient was allowed to return home, but her condition then did not encourage the hope of ultimate recovery.

EXPLORATORY LAPAROTOMY.

Case 1.—A. M. S., aged forty-two, admitted on account of emtrorrhagia, troublesome for many months previously. A fibroid uterus of very irregular outline, and reaching nearly to navel, was easily diagnosticated ; and I operated with a view to performing panhysterectomy, but the portion of the uterus in the

pelvis, and the numerous firm fleshy adhesions between uterus, intestines, and omentum, completely hid the appendages, and would have made the contemplated procedure so dangerous that I abandoned the idea, and closed the peritoneal cavity. Some weeks later a lagre uterine polypus was extruded into vagina, and its removal was followed by complete recovery.

Case 2.—B. S., aged sixty, admitted in April, 1901, complaining of loss of flesh and copious vaginal discharge, often bloody, and of late offensive. A sloughing uterine polypus was found lying in vagina, attached to the uterine wall by a long pedicle. The uterus was somewhat enlarged. The polypus was removed, iodised phenol applied to cavity of uterus, and the patient was soon well enough to return home. In March of the following year she returned, when we found a large, firm abdominal tumour apparently originating from uterus, reaching above umbilicus and adherent in all directions. An exploratory operation showed it to be a huge sarcomatous growth, involving uterus and intestines. Though there was no reason for suspecting it, I cannot help thinking that the beginning of the disease may have been present at the time of her first admission to hospital, and that life might have been saved if the uterus had been then removed. A very similar case is recorded in my report of last year. An unmarried woman was admitted, suffering from offensive vaginal discharge, and through the os externum, open to about the circumference of a shilling, could be distinctly seen some sloughing tissue, which proved to be a polypus of considerable size, and apparently benign, enclosed in a cavity, consisting of the enormously dilated cervical canal. By incising and dilating the os it was possible to remove the growth piecemeal. The uterine cavity above was small, but contained some small nodular projections, the nature and importance of which I failed to recognise. The patient went home apparently in excellent health, but in a few months returned in a hopeless condition, owing to sarcoma of the uterus

Case 3.—M. B., aged forty-three, proved, on exploration, to

have malignant disease of stomach, with ascites ; pelvic organs normal.

Case 4.—L. B., aged thirty nine, in a very cachectic condition, with general enlargement of the belly, caused by a very irregular growth, the nature of which was not ascertainable by palpation. An exploratory opening showed numerous malignant nodules, apparently springing from left ovary.

Case 5.—C. R., aged twenty-six ; tubercular peritonitis with large quantity of ascitic fluid ; relieved by opening.

Case 6.—A. B., aged forty-three, adimitted suffering from general enlargement of belly, apparently due to a fluid in a thick-walled cyst, the limits of which could not be distinctly made out. Vaginal examination did not afford any aid to diagnosis. When parietes were incised, they were found to be incorporated with a cyst of considerable size, evidently a multiocular ovarian cyst, and the contents consisting of flaky pus. The cavity was washed out, some secondary loculi were opened, and the whole was packed with iodoform gauze. Some weeks later an opening was made in the right flank, and the opening in front was allowed to close. For a while such improvement took place that recovery seemed possible, but after some months the patient lost ground and died. An apparantly more hopeless case than this, the cyst being much larger, but with similar contents, was mentioned in one of my former reports. In it I was able to effect vaginal drainage, and the patient, after some weeks of desperate illness, recovered, and was alive when heard of some years subsequently.

Case 7.—K. G., aged twenty-nine, admitted with a pulse of 140, temperature 102°, complaining of weight and pain in belly. By vaginal examinations irregular swellings, of varying consistency, could be felt in pelvis. On opening cœlom extensive evidence of tubercular peritonitis was found, and numerous adhesions of intestine and omentum in pelvis.

CLINICAL REPORT OF THE ROTUNDA LYING-IN HOSPITAL, FOR ONE YEAR, NOVEMBER 1ST, 1901, TO OCTOBER 31ST, 1902.

By R. D. PUREFOY, M.D., T.C.D.; F.R.C.S.;

Master of the Hospital.

During this year, 1,962 women were admitted to the Maternity, of whom 1,676 remained under treatment and afforded us opportunity for observing not only the commoner complications of childbed, but also such rare conditions as acute yellow atrophy of the liver, parotiditis, and puerperal aphonia. The deaths were six in number--viz., two cases of eclampsia, hopelessly ill at time of admission; one of puerperal sepsis, a patient in wretched general health during pregnancy; one of acute yellow atrophy of liver, developing a few hours after the removal of a hydatid mole; one of pneumonia, in a women suffering for years from chronic lung disease; one of accidental hæmorrhage.

Table No. I.—*Admissions to Maternity Department.*

——	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Total
Total deliveries -	113	138	134	120	129	149	169	165	139	144	143	133	1,676
Total abortions -	...	...	...	...	...	...	...	...	...	...	...	...	67
Total admissions	130	153	158	146	154	179	192	183	167	175	164	161	1,962

TABLE No. II.—*Dispensary for Out-Patients.*

Number of first attendances,	4,330
,, repeated ,,	6,660
Total,	10,990

TABLE No. III.—*Showing Nature and Number of Cases Treated in the Extern Maternity*, 1901-1902.

Total number of cases	2,190	Mania, acute	2
Abortions	262	Mortality, maternal	4
Hæmorrhage—		Twins—	
Accidental	16	Females	7
Placenta prævia	14	Males	11
Post-partum	20	Male and Female	6
	—50	Female and monster	1
			— 25
Hæmatoma cervicis	1	Triplets, 2 F., 1 M., 3 M.	2
Hydramnios	11	Operations—	
Infantile conditions—		Curetting for abortion	167
Anencephalus	2	Forceps	56
Hydrocephalus	4	Placenta removed manually	32
Spina bifida	1	Version	29
Hydrocephalus and spina bifida	1		—284
Imperforate anus	1	Presentations—	
	— 9	Breech	45
Moles—		Brow	2
Hydatidiform	1	Elbow	2
Carneous	3	Face	5
	— 4	Footling	5
Mortality, infantile (born dead)—		Knee	3
Macerated	10	Occipito-posterior	16
Non-viable	23	Shoulder	3
Premature	30	Transverse	8
Recent	24		— 89
	—87	Prolapse of funis	15

MATERNAL MORTALITY IN EXTERN DEPARTMENT; HISTORY OF CASES.

Case 1.—Mrs. L., aged twenty-eight, 2-para; delivered Dec. 3, 1901, of a four months' fœtus. When patient was first seen she had already been delivered for three hours, but the placenta was still retained, and bleeding had been occurring since. On examination the placenta was found partly expelled and gripped in cervix. It was removed with finger and curette, and the hæmorrhage ceased. Temperature was 99·2°, pulse 160, respiration 40. The patient was at the time being attended by dispensary doctor for chest complaint. Râles and rhonchi were heard over both lungs. Patient was delirious at times, and died on the following day, Dec. 4th.

Case 2.—Mrs. B., aged thirty-six; delivered on Dec. 9th of a four months' fœtus. When first seen the miscarriage was complete and no bleeding occurring. No examination was made as patient was delirious—pulse 110, temperature 99·6°,—and had been under the care of dispensary doctor for chest trouble. Patient died two days later, on Dec. 16th.

Case 3.—Mrs. S. H., aged thirty, 7-para; delivered on Feb. 12th of a six and a-half months' child. The placenta had come away half an hour before being first seen; there had been some *post-partum* hæmorrhage, pulse 120, temperature 99·4°. On evening of 12th, temperature 102·4°, pulse 114; next day, 13th, temperature 103·4°, pulse 128, the uterus was douched and curetted, and a gauze drain inserted as the lochia was foul. On 14th temperature 101°, pulse 116, the uterus again douched and gauze drain inserted. This was done daily until the 18th, on which day the lochia had become normal, the temperature 102°, pulse 130, and there were signs of pneumonia, which was distinctly developed on 19th. The temperature on that day was 104°, pulse 130. Patient died on 20th.

Case 4.—Mrs. S., aged twenty-seven, 1-para; delivered on June 25th. Patient first seen on June 24th; there was marked

œdema of legs and rest of body. Patient said she had been like this for three weeks previously, and had scanty urine. There was a systolic mitral murmur. On examination the os was found only partially dilated. At 4 a.m. on the 25th the os was fully dilated, but patient was unable to deliver herself. Uterine inertia was setting in, so forceps were applied and delivery completed —pulse 88, temperature 99·4°. On third day the temperature was 103·6°, pulse 120. The œdema was undiminished, the uterus was douched and curetted, but no cause for rise in pulse and temperature was found. The urine was examined and found laden with albumen. Patient complained of very severe headache, and was given diuretic mixture. On fourth day the temperature was 105°, and pulse 100, and two hours later temperature was 107·4°. The patient died about one hour later.

INTERESTING CASES IN THE EXTERN MATERNITY.

Case 1.—Mrs. K. M'C., aged twenty-six, fourth pregnancy; delivered Dec. 26th, 1902. *Hydatidiform mole.* Patient considered herself six months pregnant. She suddenly started bleeding one hour before been seen. She was found to be very œdematous, and had considerable suppression of urine. The uterus was hard and slightly tender. Patient was evidently threatened with eclampsia. The hæmorrhage was continuing, and as the os was closed the vagina was plugged and patient given diuretic mixture. The following day the plugging was removed, and the uterus expelled a hydatidiform mole; slight hæmorrhage continued, which ceased when the remainder of the mole was removed with the finger and blunt curette. Patient discharged well on 11th day.

Case 2.—Mrs. M. M., aged twenty-nine, fourth pregnancy; delivered Jan. 29th, 1902. *Severe post-partum hæmorrhage.* When first seen patient had been delivered of a full term child. The placenta had come away, but considerable *post-partum* hæmorrhage had occurred and was continuing. Patient was rather collapsed, pulse 130. The bleeding was controlled completely for a time. Thirteen hours later patient sent to hospital again

on account of bleeding. When seen a very considerable quantity of hæmorrhage had occurred, the bleeding having been continuing for a considerable time. The patient was very collapsed and blanched, pulse 150. On proceeding to douch the uterus a large hæmatoma of the cervix (anterior lip) was found ; the uterus was douched and curetted, and some placental fragments and membranes removed, and the bleeding ceased. Whiskey and strychnin were given, pulse dropped to 135. Three hours later patient was very low, pulse 160. Zaline solution, 1 pint, was injected into breast. The pulse came down to 120. From this on the patient gradually improved, and was discharged well.

Case 3.—Mrs. K., 5-para, was delivered on Dec. 10th of *triplets*. The first child was born at 5 a.m. as a breech, alive. The second was not born until 11.15 a.m., the membranes having been ruptured artificially at 8 a.m. A common placenta followed this child, which presented by vertex. These two children were both females, and both alive. The third child was born immediately after the first placenta being expelled in the membranes, and followed at once by its placenta. This child was asphyxiated, and died one hour after birth, having been Schultzed ; this child was a male. The second child died of convulsions when nine days old. The first child was alive at the time the case was discharged, twelve days old.

Case 4.—Mrs. K. M., sixth pregnancy, was delivered on 28th March, 1902, of *triplets*. All three children were born on arrival —1st by vertex, 2nd breech, 3rd vertex. There were all males, and had one common placenta. The first two children were alive, the third was dead.

Case 5.—(*acute hydramnios*).—Mrs. E. D., aged thirty-two, 8-para ; delivered on June 21st, 1902, of twins ; second sac of membranes was hydramniotic. Patient was six and a-half months pregnant, and considered herself so. When first seen she was the size of full term ; she said she had been what she considered a normal size for the period of pregnancy three days previously, but had then rapidly increased in size. The first child was born

TABLE NO. IV.—*Accidental Hæmorrhage Cases in Extern Maternity.*

Name	Age	Date	Para	Variety	Treatment	Result to Child	Remarks
M. V.	27	Nov. 20th	6	Ext.	Vagina plugged	Alive	Labour had commenced ; child born in 7½ hours.
M. G.	29	Jan. 23rd	7	,,	,,	Dead	7 months' fœtus ; labour set in quickly, and plugging removed in 5 hours. Membranes ruptured.
W. K.	20	Feb. 6th	4	,,	,,	,,	6 months' fœtus ; plug removed in 17 hours Labour followed, and patient delivered herself in 10 hours.
L. D.	27	Feb. 7th	4	,,	,,	,,	6 months' fœtus ; labour followed in 14 hours.
R. O'N.	35	Feb. 12th	7	,,	,,	,,	Labour followed in 8 hours.
A. S.	23	Feb. 13th	1	Mixed	Prophylactic	Alive	Bleeding for a few days before labour came on. Large clot expelled with placenta.
M. R.	27	Feb. 23rd	4	Ext.	,,	,,	Bleeding ceased when labour set in.
A. M.	—	Mar. 5th	2	,,	Vagina plugged	Dead	Labour came on 28 hours after plugging.
W. R.	38	Apr. 20th	14	,,	,,	Alive	Child born in 3½ hours.
M. G.	31	May 10th	2	Mixed	,,	Dead	Child born in 4 hours.
M. C.	38	Aug. 4th	12	Ext.	,,	Alive	Presentation transverse ; version performed when plug was removed. Labour did not ensue for 36 hours.

normally, and the sac contained only an ordinary quantity of liquor amnii. The second sac was found extremely tense; the membranes were ruptured, and the second child extracted by a foot, as it was found to be lying transverse.

Case 6.—Mrs. B. M., aged thirty-two, 8-para; delivered on July 21st (spontaneous expulsion). Patient was five and a-half months pregnant. When first seen the os was well dilated, and the child, which was slightly macerated, was lying transverse, and had partly descended into the cavity of pelvis. The patient delivered herself; the child being expelled by spontaneous expulsion,

Case 7.—Mrs. C., aged thirty-nine, multiparæ. *Tubal abortion*, Patient sent to hospital on account of slight bleeding which had occurred six hours previously, but which had ceased on arrival. Patient gave history of being two months pregnant. She had some bleeding three days previous to being seen, at which time she had also had slight pain and had become faint; she thought she had aborted at this time. On examination the uterus was found pressed up tightly against the symphysis by a firm elastic tumour, which was filling Douglas's space; the pulse and temperature were normal. Patient would not come to hospital. She was seen three weeks later and was in good health.

Case 8.—Mrs. E. W., aged thirty-two, third pregnancy; delivered on June 2nd, 1902. Patient was found to be paralyzed all down the left side of body, arm, and leg, and had been so for some three years. On June 3rd the pulse was 120, temperature 98·8°. On 5th, pulse 112, temperature 99·6°; the lochia quite normal On 8th, pulse 120, temperature 102°. The uterus was douched and curetted, but nothing came away; the lochia was normal. It was then found that patient was constipated since confinement, although she had been ordered to take oil, and has said that the bowels had acted well on the third day. After douching, the temperature came down to 100·8°, pulse 120. On June 8th, seventh day, the temperature was again 102·2°, and pulse 120; oil and enema had been given, but had no result. Purgative again given, which acted well, and on ninth day, temperature 100°, pulse 102;

the lochia was quite normal, containing very little blood. On eleventh day the pulse was 145 and temperature 104·2°, and both continued high until fourteenth day, when temperature was 104·6°, pulse 140, and patient was found to have developed paralysis of the right side, arm, and leg. The case was then transferred to dispensary doctor.

TABLE NO. V.—*Showing Number and Nature of Cases Treated in the Intern Maternity.*

Total number of cases	1,676	Multiple pregnancy—	
Primiparæ	534	Twins, viz.:—	
Abortions	67	Female	5
Deformed pelvis	11	Male	6
Eclampsia	5	Mixed	10
Epilepsy	2		—21
Erythema	10	Myoma uteri	9
Œdema vulvæ	5	Aphonia	2
Hæmorrhage, viz.:—		Puerperal ulcer	2
Accidental	21	Rupture of uterus	1
Unavoidable	6	Operations—	
Post-partum	43	Forceps	64
Secondary	3	Induced abortion	5
Hydramnios	15	Induced labour	7
Hyperemesis	2	Manual removal of placenta	26
Morbidity	103	Perforation	1
Moles	1	Version	6
Mortality, infantile—		Decapitation	2
Macerated	19	Diseased infantile conditions—	
Premature	17	Talipes	4
Recent	25	Anencephalus	3
Mummified fœtus	2	Cephalhæmatoma	5
Mortality, maternal	6	Hydrocephalus	2
Mania	2	Ophthalmia	7
		Spina bifida	2
		Hare-lip and cleft palate	1
		Presentations—	
		Breech and Footling	45
		Brow	5
		Face	2
		Occipito-posterior	10

INDUCED ABORTION.

Case 1.—M. G., aged thirty, 9-para. Pregnancy had reached sixth month, and was associated with considerable hydramios. Patient was in advanced pulmonary phthisis, and for several days was voiding urine containing blood in considerable quantity and tube casts. As rest and suitable treatment were not followed by any improvement, I determined to empty the uterus, and accordingly three bougies were passed into uterus, and vagina plugged. On the following day, no pains being present, laminaria tents, twelve in number, were inserted in cervix, and the Faradic current was used at intervals. About ten hours subsequently good pains came on, and the tents and bougies were removed; during this proceeding nearly 14 pints of liquor amnii escaped, and were soon followed by the birth of a six months' fœtus. The placenta required manual removal. A normal puerperium followed, and urine was free from blood at the time of her discharge.

Case 2.—M. H., aged twenty-four, 4-para; admitted on account of excessive vomiting in the fourth month. Examination showed cervical erosion, which was improved by treatment, but without relief to the vomiting; and as the patient continued to lose strength, it seemed advisable to terminate the pregnancy. Five laminaria tents were placed in cervix, and vagina plugged; and on the following day the uterus was emptied with the flushing curette and ovum forceps. Convalescence was rapid and satisfactory, though constipation was very troublesome.

Case 3.—M. M'C., aged thirty-two, 7-para; had considerable intermittent bleeding during two weeks before admission, at which time she was presumably four months pregnant, the outline of the uterus being rendered very prominent by a fibroid situated in anterior uterine wall. Patient complained of foul taste in mouth; nausea and shivering, and a bloody vaginal discharge was present. Tents were placed in cervix, tampon placed

in vagina ; and about twenty hours later it was found possible to empty the uterus, and a satisfactory puerperium followed.

Case 4.—E. D., aged twenty-five, 3-para ; admitted on account of hæmorrhage ; in the fourth month of pregnancy. Rest in bed was followed by temporary cessation of bleeding ; but it soon recurred, alternating with brownish watery discharge. Tents were passed into cervix, a vaginal tampon inserted, and in twenty-four hours the cervix was sufficiently dilated to permit the emptying of the uterus, which contained in addition to the ovum a large quantity of blood clot. Convalescence satisfactory in every respect.

Case 5.—C. K., aged twenty-two, 2-para. Patient was two months pregnant when admitted to hospital on account of hæmorrhage, which was partially checked by rest in bed for a few days. It then became so considerable that active treatment was necessary and with aid of Hegar's dilators it was found possible to empty the uterus.

TABLE OF CONTRACTED PELVIS.

Our present report deals with a considerably smaller number of cases of contracted pelvis than that of last year. In four cases premature labour was induced ; all of these had undergone this treatment in the Rotunda on former occasions. In four out of the total of nine cases delivery was effected with the forceps ; three of the infants were born alive, but in the case of the fourth respiration was not established, though the heart was beating at time of birth. In two cases, following the induction of premature labour, podalic version was performed. In the remaining three delivery was unassisted.

TABLE NO. VI.—*Cases of Contracted Pelvis.*

Name	Age	Para	Pelvic Measurements					Mode of Delivery	Result to Child	Remarks
			C. V.	Trans.	Ext.C.	I.-C.	I.-S.			
A. M.	25	I.	6·5	6·75	15 5	25	20·5	Forceps	D. 6¾ lbs.	Membranes ruptured 12 hours before admission Fœtal heart beating at time of birth
M. M.	36	V.	9	10·5	—	—	—	Natural	A. 6¼ ,,	Induced labour
M. D.	23	III.	6·25	—	17·5	30·5	27·5	Podalic version	D. 4 ,,	Do.
J. D.	21	I.	—	—	—	—	—	Forceps	A. 5 ,,	Rostrate pelvis
M. D.	32	V.	8·75	10·5	—	—	—	Podalic version	D. 3 ,,	Induced labour. Bougies and tents in cervix for 30 hours. Soon after their removal bleeding occured, and, as placenta could be felt, version was performed
M. S.	27	II.	6·5	10·5	—	—	—	Natural	A. 6½ ,,	In the former labour also the child was born alive, 5¼
A. G.	22	I.	—	7·2 At outlet	16	23	19 5	Forceps	A. 7½ ,,	Narrow outlet
E. S.	32	II.	8	7·5	17·5	27	23·5	,,	A. 8½ ,,	Occipito-posterior
K.M'E.	42	VI.*	—	—	—	—	—	Breech	A. 5½ ,,	Induced labour
M. D.	20	I.	3	—	—	—	—	Perforation	D.	During first stage membranes ruptured and the cord prolapsed; pulseless, no fœtal heart heard two hours previously
J. D.	21	I.	—	—	—	—	—	Forceps	A.	Rostrate pelvis. Head arrested in cavity.

* *See* former Report.

TABLE No. VII.—*Accidental Hæmorrhage.*

Name	Age and Para	Date	Variety	Treatment	Result to Child	Remarks
1. A. O'B.	32, III.	Dec. 9, 1901	External	Membranes ruptured	Alive	Child born 2 hours after admission.
2. E. E.	25, V.	Dec. 26	,,	None	,,	Patient was kept in for four days, and was delivered 11 days after occurrence of hæmorrhage.
3. M. W.	35, VIII.	Jan. 1, 1902	,,	Vagina plugged and tight binder	Dead	Hæmorrhage occasionally for five weeks; became copious on day before admission. On admission os admitted one finger. Child born in 22 hours.
4. M. K.	21, II.	Jan. 15	Internal	None	Dead, non-viable	Considerable hæmorrhage occurred on rupture of membranes and then ceased. Child born in two hours: placenta with child.
5. E. N.	31, IV.	,, 17	Internal and external	Vaginal plug and binder	—	Patient in collapse when admitted: no external bleeding, but this showed shortly after: vomiting occurred three and a half hours after admission, and patient died.
6. E. T.	44, XII.	June 12	Mixed	None	Alive	Premature; 1½ lbs. of clots with child.
7. R. M.	20, I.	,, 20	External	,,	,,	Hæmorrhage slight; good labour. Child born in three hours.
8. M.O'C.	25, I.	Apr. 28	,,	,,	,,	Premature; 8th month. Delivered in 30 mins. after admission

Table No, VII.—*continued.*

Name	Age and Para	Date	Variety	Treatment	Result to Child	Remarks
9. S. E.	30, I.	Apr. 27	External	None	Alive	Hæmorrhage occurred one week before, and again just prior to, admission. Child born one and three quarter hours after.
10. L. P.	23, III.	,, 26	Internal	,,	,,	Large organised clot on placenta
11. L. T.	24, V.	,, 10	External	Membranes ruptured; tight binder	,,	Hæmorrhage before admission and occurring with each pain; cord, tightly round neck of child, had to be divided to allow of delivery.
12. E.M'G	23, I.	Feb. 28	Mixed	Vaginal plug and tight binder; forceps delivery	Macerated	Pulse very variable; hæmorrhage going on; uterus tense and tender on palpation.
13. K. D.	23, I.	May 4	External	Vaginal plug, followed by rupture of membranes	Dead, 8th month	Slight pains when admitted, strong labour after plugging. Child born in six hours
14. M. R.	26, V.	,, 8	,,	Tents and plugging; version	Dead, non-viable	Patient was plugged five days before admission for hæmorrhage, which ceased until just before admission; labour induced, and version performed.
15. E. P.	35, IV.	July 4	,,	None	Alive	Bleeding slight. Child born in four and a half hours.
16. B. B.	29, IV.	,, 28	,,	Membranes ruptured	,,	Intermittent bleeding six hours before admission; then became smart; os three-fourths dilated. Child born half an hour after rupture of membranes.

TABLE NO. VII.—*continued.*

Name	Age and Para	Date	Variety	Treatment	Result to Child	Remarks
17. C. G.	29, VI.	July 2	Mixed	None	Dead,	Slight external bleeding; 1¾ lbs. of clots expelled with placenta.
18. K. K.	25, I.	Sept. 2	External	,,	Alive	Hæmorrhage slight on admission, ceased very soon without treatment.
19. E. G.	30, XII.	,, 20	,,	Vaginal plug and version	Dead, 6th month	Hæmorrhage had been going on for ten days; vagina plugged before admission; no bleeding after. Version performed, when plug was removed. Child born in 30 hours after plugging.
20. M. L.	30, III.	Nov. 12, 1901	,,	Membranes ruptured	Alive	Child born one and a half hours after rupture of membranes.
21. B. D.	36, VII.	Nov. 19	Internal	Vaginal plug and binder	Dead	Child born three and a half hours after plugging; 1¾ lbs. of clots expelled; placenta born with child.

ACCIDENTAL HÆMORRHAGE.

The cases tabulated under this heading illustrate varying degrees of severity in this formidable complication of child-bed; out of the total, 21 in number, ten did not call for active treatment; in four, rupture of the membranes proved sufficient; in six, the use of the vaginal tampon was deemed necessary; and in one, in addition to this measure, the cervix was dilated by laminaria tents. Forceps delivery was found advisable in one instance. In Case No. 11 the funis was so tightly coiled round the infant's neck that it

was found necessary to tie and divide it before delivery could be completed. The patient No. 5 in our table was admitted in a state of collapse; though no external bleeding had occurred, the patient's aspect and the tense condition of the uterus strongly suggested the diagnosis of concealed hæmorrhage. On vaginal examination the os barely admitted one finger; the membranes were unruptured, and the presenting head not fixed. Soon afterwards profuse external hæmorrhage took place; the vagina was tamponed and a binder applied. Strychnin and stimulants were given, and some slight improvement in her condition was observable for a few hours. A fit of vomiting then occurred, immediately after which the patient expired.

Table No. VIII.—*Placenta Prævia.*

Name	Age and Para	Date	Variety	Presentation	Period	Result to Child	Remarks
. M. C.	40, VII.	Feb. 22	Marginal	Vertex	$7\frac{1}{2}$ months	D.	Bipolar podalic version. Soon after explusion of placenta a mummifiedfœtus and placenta were expelled.
. M.M'D.	24, III.	April 3	Lateral	,,	8 ,,	A.	Unassisted.
. L. W.	33, IX.	,, 30	,,	,,	6 ,,	D.	Induced labour.
. M. S.	22, III.	Sept. 3	,,	,,	8 ,,	D.	Bipolar podalic version.
. H. M.	38, X.	Mar. 6	,,	Head and Foot	7 ,,	D.	Version internal.
. M. D.	32, V.	,, 17	Marginal	Vertex	7 ,,	D.	Bipolar podalic version, Premature labour had been introduced on account of pelvic contraction.

PLACENTA PRÆVIA.

In only six cases was the placenta abnormally situated; and the mothers all enjoyed a favourable convalescence, though the mortality amongst the infants was higher than usual.

PRESENTATIONS OF HEAD OTHER THAN VERTEX.

There were ten cases of persistent occipito-posterior, five of which required forceps delivery; the remainder were delivered unaided. In five instances the brow presented; in three of these delivery was unaided and presentation unaltered all through labour. In one case the forceps were used, and in one the presentation was changed to vertex by Schatz's method. In two cases of face presentation delivery was unaided; in each case the fœtus was anencephalic.

HYPEREMESIS; INDUCED LABOUR; CURE.

Case 1.—A. C., aged thirty-five, was admitted to hospital January 29, near the end of her 9th pregnancy. Patient, whose aspect was truly wretched, stated that vomiting had been troublesome during the whole pregnancy, but especially during the preceding four weeks, when it was attended with severe epigastric pain. The tongue was morbidly clean, of a deep red colour, and thirst was present in a distressing degree. The vomited matters were of a dark-brown colour. Pulse and temperature normal; urine slightly albuminous. The remedies generally efficacious in relieving emesis were tried for some days, without avail, so I proceeded to induce labour by passing bougies into the uterus and sea-tangle tents into cervix, at the same time plugging the vagina lightly. In a few hours vigorous labour pains came on and a healthy living child was easily born. Immediate relief from vomiting followed, and such satisfactory recovery of strength that in a few days the patient was able to nurse her infant. Relief to the bowels was not obtained till the 7th day after her admission to hospital, and during the same time not even flatus passed; yet

no tenderness, nor distention of the abdomen was observable. The day after delivery a dose of calomel, followed by massage of the bowels, effected the desired result. Notwithstanding the speedy improvement which followed the emptying of the uterus, I am of opinion that the pregnancy was only one of the many factors to which the excessive vomiting was attributable; and the long-continued inaction of the bowels, for some time led me to apprehend that the trouble was intestinal rather than uterine.

Case 2.—*See* "Induced Abortion."

HYDRAMNIOS.

Nine cases of this affection were under observation during the year; all the children were born alive, except one, premature at the sixth month; and all well formed except two, of which one showed spina bifida aud talipes varus, and the other hare-lip and cleft palate.

MULTIPLE PREGNANCY.

In the case of M. A., aged thirty, 7-para, some bleeding occurred before admission, but had not continued. On the following day, the os being well dilated, and some hæmorrhage recurring, membranes were ruptured, and a binder applied. As uterine action continued feeble delivery was completed with the forceps; and the second child, presented by the shoulder, was delivered by version. Placenta removed manually owing to morbid adhesion.

M. W., aged twenty-four, 1-para, took ill prematurely. The first child was anencephalic and presented by the face; the second child, also very small, presented by the breech, and was born alive.

M. K., aged twenty-one, 1-para, suffered from frequently recurring epistaxis from the fourth month, though less troublesome in the latter weeks. Both children born alive.

Many years ago I admitted to the Adelaide Hospital a patient in the eighth month of pregnancy who had nearly died

from persistent epistaxis. The insufflation of tannic acid was effectual in stopping the bleeding, and some days later she was delivered of a stillborn infant, and made a good recovery. This patient on a former occasion, I was informed, nearly lost her life from uterine hæmorrhage.

M. C., aged twenty-five, 1-para, was admitted in labour, and a foot was found presenting. No difficulty was experienced with the arms; but the head of the second twin having entered the pelvis, the completion of delivery was found impossible, till decapitation of the first child was practised. The second child was born alive,

In two cases hydramnios was observed, and it is interesting to record that they both illustrated the correctness of Dr. M'Clintock's remarks that in cases of twins the second ovum is that most commonly affected.

In the case of E. P., aged twenty-four, 2-para, the second presentation was compound, consisting of head, cord and hand. Replacement of cord and hand was effected, and natural delivery followed soon after.

In another similar case the head and feet of second child presented, and delivery was completed as a footling.

In the case of F. O'C., aged twenty-six, 6-para, the first child, macerated, presented by the vertex and was born unassisted. The second, also macerated, lay obliquely, and in the interests of the mother decapitation was performed.

MULTIPLE PREGNANCY—TWINS.

Male and Female	10
Both Male	6
Both Female	5
Female and Mummified Fœtus	1
Premature	8
Both Vertex	9
Vertex and Breech	2
Breech and Vertex	2

MULTIPLE PREGNANCY—TWINS.—*continued.*

Vertex and Transverse	2
Breech and Head, Cord and Hand ..	1
Face and Breech	1
Both Breech	3
Both Footling	1

TABLE No. IX.—*Application of Forceps.*

Indication	No.	Dead Children	Remarks
Delay in 2nd stage, with danger to mother and child - - -	49	4	
Eclampsia - -	1	—	
Threatened rupture of uterus - -	2	—	
Accidental hæmorrhage-	1	1	
Pelvic contraction -	4	—	
Prolapse of funis -	2	—	
Persistent occipito-posterior - -	5	—	
Brow - - -	1	—	
Tumour obstructing delivery - -	1	—	
Total, - -	66	5	

SUB-TABLE A.—*Application of Forceps.*

I.-para -	48	VII.-para -	3
II.-para -	7	VIII.-para -	2
IV.-para -	2	IX.-para -	1
VI.-para -	2		
		Total -	65

SUB-TABLE B.—*Ages of Cases.*

17-25 - -	29
26-30 - -	22
31-35 - -	9
36-40 - -	3
41 and over -	2

Although the total cases under treatment were considerably more numerous than those recorded in our last Annual Report, the forceps deliveries were somewhat fewer ; and, as has been often observed before, the patients were chiefly primiparæ. In 16 cases episiotomy was performed, and I still prefer the median incision. The patient M. F., aged forty-three, 7-para, was in hospital in 1897, when it became necessary, owing to the conditions present, to deliver by perforation, while the os was only three-fifth dilated. In October of this year, while dilatation was still incomplete, it again became necessary to terminate the labour owing to threatened rupture of uterus. Happily it was found possible to apply the forceps and deliver the child alive.

Only one case of brow presentation, and only five of persistent occipito-posterior, required instrumental delivery. In the case of B. M., primipara, aged twenty-seven, extraction was very difficult and prolonged, and the funis was very tightly coiled round child's neck ; efforts to resuscitate it proved unavailing. In the case of J. T., aged thirty-four, 7-para, admitted from extern Maternity, the advance of the head was prevented by a tumour, resistant enough to be considered a fibroid, and large enough to fill the pelvis. Under anæsthesia it was found possible, though with much difficulty, to push it out of the pelvis, and expedite delivery by applying the forceps. During the puerperium there was a continuous, though slight elevation of temperature, and a tender tumour, similar in size and consistence to that found

in the pelvis, lay in the right iliac fossa. The patient being weakly, I deemed it advisable to defer its removal for a time ; and the subsequent history of this very interesting case appears in our Gynæcological Report.

A primipara, M. B., aged twenty-eight, was found after delivery to have a laceration of cervix and perineum, and in the vestibule, attended with considerable bleeding ; sutures were applied, and a most satisfactory convalescence ensued. A prolonged second stage in the case of a primipara, M. W., aged twenty-two, rendered a vaginal examination expedient, when the left parietal bone was found to be presenting, and on it was observed an abrasion the size of a shilling. Delivery with the forceps was effected without difficulty, but the temperature was abnormally high for four days, during which time the woman became deeply jaundiced. Phosphate of sodium was given with much benefit, and a normal puerperium followed. Jaundice in childbed generally implies a profoundly deteriorated condition of the blood, due to sepsis, or other equally serious causes ; and I cannot recall another case similar to the one just narrated. Vomiting of wine coloured fluid, mixed with black, flaky matter, occurred in the case of M. R., 1-para, aged twenty-five, a few hours after delivery with the forceps, but the subsequent puerperium was uneventful.

The primipara, M. J. F., aged twenty-two, presented in a marked degree the build and general aspect of a cretin—prominent high forehead ; scalp thinly clad with wiry hairs ; belly so pendulous that it rests on patient's thighs ; kyphosis of lower dorsal region of vertebral column ; lordosis of upper dorsal and lower cervical regions. The narrowness of the pubic arch and introitus vulvæ rendered inevitable a considerable lesion of the pelvic floor, but the child was delivered alive, and a satisfactory, though tedious, convalescence followed. Early rupture of membranes followed by much delay

in labour necessitated the application of the forceps while the head was still above the brim in the case of S. M., 6-para, aged thirty-seven. Extraction was easy when the head had been drawn through the inlet. Tight winding of the cord round the neck, and prolonged and difficult extraction were the obstacles to the birth of a living child in the case of B. M., 1-para, aged twenty-seven.

The infant of C. Q., aged twenty, 2-para, suffered from slight left-sided facial paralysis, the forceps having been used when the mother was presumably 10 hours in second stage.

C. B., aged thirty-six, 8-para, suffered much during a protracted first stage, and when a vaginal douche was being used, previous to the application of the forceps, a piece of the posterior lip of cervix was found loose lying in vagina. I had an exactly similar experience some months ago in a case in which the brow presented.

The child of J. S., 1-para, aged twenty-seven, delivered with forceps, on account of delayed second stage, presented soon after birth 3 cephalhæmatomata on posterior aspect of skull.

The following recital will afford scope of conjecture as to the cause of the alarming condition which followed delivery ; in my opinion partial rupture of the uterus took place :— G. R., aged forty-two, 4-para, when only a short time in the second stage began to strain so violently, the persentation at the time being occipito-posterior, it was deemed necessary to aid delivery with the forceps. Incomplete rotation of head occurred, and much difficulty arose in delivery of the shoulders, the right one becoming hitched over the symphysis. The child's heart was beating feebly at birth, but ceased shortly afterwards. At completion of delivery patients' pulse was rapid and feeble ; and despite the use of stimulants and injection of strychnin and digitalin, in an hour or two afterwards very alarming collapse was present, the radial pulse

becoming imperceptible and surface cold. Restorative treatment was followed by slow improvement, and the next morning the pulse could be counted, but there was marked swelling and tenderness of the belly, and frequent vomiting of small quantities of dark fluid. Morphin was injected at intervals, a wet pack spread over the belly, and nourishment administered by the bowel. On the third day movement of the bowels followed a dose of calomel, and soon afterwards the vomiting ceased and was replaced by a very relaxed condition of the bowels, lasting for several days. An elevation of pulse and temperature on the seventh day was treated by douching and tamponade of the uterus with iodoform gauze; and at this time marked thickening and resistance were felt in anterior fornix. Her further convalescence was somewhat retarded by the formation of a small abscess in left parotid gland, but she was able to leave the hospital soon afterwards, and is now in excellent health. At the time of her discharge, in addition to the above-mentioned swelling and hardness, and swelling in vaginal fornices, it was observed that the outline of the corpus uteri could not be felt distinctly, owing, I believe, to the existence of numerous intestinal adhesions.

In this most interesting case, the constitutional symptoms, and the local signs which followed them, left no doubt in my mind that an incomplete internal rupture of the uterus occurred, though no examination which I thought warrantable at the time enabled me to detect its exact position; and the favourable issue should prove most encouraging in dealing with other similar cases. In this connection I think it interesting to recall two cases mentioned in my former Reports. In one, a primipara, no serious cause for alarm was present till several hours after a natural unaided labour of moderate duration; yet a fatal ending occurred on the fourth day, and a complete rupture of small size was found in the posterior wall of the lower uterine segment. In

another, a multipara, premature labour came on at the sixth month, and the pains having ceased after one of unusual severity, a vaginal examination was made. The body of the fœtus, lying transversely, was found protruding through a rent in the left uterine wall, and on its delivery a coil of intestine followed it. This was replaced, and a tampon of iodoform gauze was inserted. An excellent recovery ensued. No indication of the lesion was given by either pulse or temperature. One point at any rate is manifest—viz., that we have not yet sufficient data for formulating any special rule for the surgical treatment of these cases.

In the case of E. S., aged thirty-two, 2-para (see also under "Contracted Pelvis"), vagitus uterinus was distinctly heard by several persons present.

TABLE NO. X.—*Uterine Fibroids.*

Name	Age	Para	Presentation	Duration of Pregnancy	Child	Remarks
M.A.P.	21	2nd	Vertex	Term	A.	Fibroid = Size of Tangerine orange on anterior wall of uterus.
M.M.	25	1st	,,	,,	,,	Small fibroid on fundus.
S. T.	36	,,	—	—	—	Abortion in 10th week. See Auxiliary Report.
M. J.	35	,,	Vertex	Term	A.	Fibroid tumour on left side of uterus. Underwent successful hysterectomy some months later.
M. C.	40	6th	Breech	,,	,,	Several small subperitoneal fibroids.
E.M'L.	25	3rd	Vextex	,,	,,	Large fibroid, involving left half of fundus.
J. B.	32	2nd	,,	,,	,,	Two subperitoneal fibroids near fundus.
S. M.	22	1st	,,	,,	,,	Small fibroid projecting from fudus.
B. H.	35	4th	,,	8 months	,,	Forceps. Fibroid = cricket-ball on anterior wall of uterus.

Table No. XI.—*Morbidity.*

Temperature	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Total
100·8° to 101·2°	4	1	2	6	1	2	2	3	2	2	3	3	31
101·2° to 102·2°	1	4	2	4	1	1	3	2	3	5	4	4	34
102·2° to 104°	1	1	4	4	4	5	1	2	3	1	3	5	34
104°	1	-	-	1	-	-	1	-	-	-	1	1	5
Total per month	7	6	8	15	6	8	7	7	8	8	11	13	104
Percentage per month	6·30	4·25	6·15	12·71	4·68	5·5	4·34	4·34	5·67	5·71	7·63	9·42	6·27

MORBIDITY.

Of the patients under the first heading—viz., 100·8°-101·2°, twelve had a single elevation of temperature and received no treatment. The remainder were mild cases, yielding readily to douching, curetting, &c. One was a case of syphilis. In two instances the patient had given birth to a macerated fœtus; in one case the patient had a fibroid uterus; *post-partum* hæmorrhage occurred in one case. A puerperal ulcer was once present. In two instances the pyrexia followed manual removal of placenta. Five cases are included in the sub-table. Between 101·2° and 102·2° there were seven cases with one or two elevations of temperature, and requiring no treatment; in two cases the pyrexia followed the birth of a macerated fœtus. In one case of forceps delivery a single elevation of temperature occurred thirty hours subsequently. In three cases *post-partum* hæmorrhage had occurred. Two are referred to sub-table.

Between 102·2° and 104° F. there were five cases in which forceps delivery had become necessary; one of these is mentioned in detail under the heading "Incomplete

Rupture of the Uterus." In another, when the temperature was falling, jaundice developed. Accidental hæmorrhage preceded the pyrexia in one instance ; and in one, manual removal of placenta. In the case of a patient delivered in the Lodge, deep laceration of vagina and perineum occurred, requiring five sutures. Nine cases are referred to sub-table. In two cases, abortion and hydramnios, respectively had occurred.

In the case of J. D., aged twenty-one, 1-para, the head was arrested in the pelvic cavity, owing to rostrate deformity in a woman whose history and aspect gave evidence of very bad health. On the second day the temperature rose to 103·6°, and in spite of treatment the pyrexia continued. Signs and symptoms of peritonitis followed, and patient died on the 16th day.

In eleven of the septic cases convalescence was established within ten days, sufficiently to allow of the patients' discharge. In five instances the temperature rose above 104° F. In one a puerperal ulcer was present. One patient having had an incomplete abortion at home, was admitted to hospital with a temperature of 99·4°.

In the case of A. C., 3-para, the temperature rose on the fourth day to 100·8°, and on the following day to 104°. Uterus curetted and douched, when it was observed that the posterior vaginal wall presented several small, yellow elevations very similar to what had been observed during her stay in hospital sixteen months previously, and which are described and figured in my Report for last year. In spite of assiduous antiseptic treatment, local and general, a high range of temperature continued with the development of troublesome cough and the physical signs of pulmonary phthisis. She took nourishment freely and slept well ; the vaginal conditions showed great improvement, but no change for the better was observable in the lungs at the time of her

discharge from hospital. I am strongly of opinion that this was a case of tuberculosis of the vagina.

The case of S. D.—Patient admitted with a temperature of 103° and the physical signs of pneumonia at base of left lung. Delivery did not take place till several days later, and defervescence occurred by lysis; and patient was discharged, well, at the end of three weeks.

In the case of M. K., manual removal of placenta was required on account of hæmorrhage and morbid adhesion. Rigors and pyrexia occurred on fifth day, and a tardy convalescence followed, the patient not being fit for discharge till the third week.

Sub-Table of Morbidity.

Chronic Bronchitis and Asthma	1	Mania	1
Influenza	3	Mastitis	8
Ischio-rectal Abscess ...	1	Peritonitis during Pregnancy	1
		Pneumonia	2

Table No. XII.—*Prolapse of Funis.*

Name	Age	Para	Date	Period of Pregnancy	Result to Child	Presentation	Remarks
1. S. M.	20	III.	Apr. 26	Term	A.	Vertex and hand	Version
2. H. M.	38	X.	Mar. 6	—	D.	Head & foot	Version; with difficulty, owing to entire absence of liquor amnii. Placenta found in lower uterine segment adherent
3. P. K.	24	I.	May 19	8½ months	D.	Vertex	Cord pulseless on admission; no interference
4. K. P.	21	I.	July 27	Term	A.	,,	Forceps
5. A. H.	38	V.	Jan. 12	,,	A.	,,	Forceps
6. B. D.	20	I	Sept. 14	,,	D.	,,	Cord pulseless; craniotomy
7 B. C.	25	II.	Dec. 17	8 months	D.	Footling	Cord pulseless when diagnosed
8. M. M	28	II.	Aug. 19	Term	A.	Breech	Foot brought down, and child delivered in asphyxia livida

ACUTE YELLOW ATROPHY OF LIVER.

CASE—J. M., aged forty, a large, fair-complexioned woman well nourished, was admitted on March 20, 1902, at 4 p.m. Pulse 100; temperature 99·8°. For several weeks previously, at irregular intervals, bleedings had occurred sufficient to cause marked loss of colour. The os admitted one finger, and the fundus was up to umbilicus, showing a degree of uterine enlargement inconsistent with the patient's belief as to the period of pregnancy. Very trifling discharge occurred during the succeeding thirty-eight hours, and on the forenoon of March 22, after a vaginal douche, eight laminaria tents were passed into cervix and a vaginal tampon was inserted. Three hours afterwards a rigor occurred; and some hours later, owing to bleeding, the tampon and tents were removed, and the uterus emptied partly by the finger, and partly with the flushing curette, of a large, vesicular mole. The bleeding ceased for some time, but later recurred, and was checked by injections of ergot. The patient did not rest well, complained of sickness and thirst, but was able to retain a good quantity of milk. On passing the catheter a few drops of dark-coloured urine were removed. At the approach of daylight, about 6.30 a.m., her face showed a distinctly jaundiced hue, which became more pronounced through the day, and was attended with very alarming evidences of failing strength, weak, intemittent pulse, and slow, irregular respirations. Pain in head and back and tenderness over surface of belly were complained of. The area of liver dulness was not diminished, but pressure over it caused pain. At 1 o'clock two pints of saline solution were injected into left arm; and though this was followed by a transient improvement in the pulse, her condition became steadily worse, and death, preceded by a rigor and a state of unconsciousness, took place about 5 o'clock p.m. A former pregnancy had ended in the formation of a vesicular mole; but a living child had been born about two year before her last illness.

Dr. Earl has furnished me with the following report:—

"The heart was normal; the lungs were slightly œdematous

and showed hypostatic congestion. The abdominal organs were normal except the liver and kidneys. The liver was not diminished in size, was smooth on the surface and showed marked bile staining. A number of purple patches were seen under the capsule, and similar patches were seen on the cut surface of the liver. These were of irregular shape and varying size, none larger in area, as seen from the surface, than a sixpence. The common bile duct was quite normal, as were also the cystic and hepatic ducts. The duodenum was examined with care, and found to be quite normal. The gall-bladder contained a little bile, but no gall stones. The kidneys were somewhat larger than normal, but their capsules were not adherent. They presented a few purple patches similar to those seen on surface of liver but smaller. The left kidney had two ureters which came off from separate pelves, and opened separately about a quarter of an inch apart into the bladder. The uterus showed no pathological condition. All the organs showed more or less bile staining, as did the pericardial fluid and the blood serum. The microscopic examination of the liver and kidneys gave the following results :—

"*Liver.*—In the purple patches above alluded to the capillaries were greatly dilated and filled with blood, the liver cells being more or less deformed by pressure, but not degenerated. These purple patches were generally larger than a lobule of the liver, and did not bear any fixed relation to the intralobular veins. The liver cells generally were normal in appearance, except that many of them contained more or less bile pigment. The bile ducts and blood vessels seen in microscopic sections appeared quite normal. There were no hæmorrhages in the liver.

"*Kidneys.*—The purple patches were found to be due partly to dilated capillaries, and partly to small hæmorrhages into the interstitial tissue, not into the renal tubes. The glomeruli were normal ; only one was in a state of fibrous degeneration. There was an albuminous exudation into Bowman's capsules and into many of the renal tubes. Many of the latter contained hyaline

casts, and some contained shed epithelial cells, and occasionally leucocytes and red blood corpuscles, but the latter were very few. The epithelial cells contained numerous coarse granules of an albuminous nature and occasionally fat drops. The vessels of the kidneys appeared normal, and there was no increase in the interstitial tissue.''

POST-PARTUM HÆMORRHAGE.

During the year forty-six cases of *post-partum*, including three of secondary, hæmorrhage were under treatment. In thirty one instances the bleeding took place during the third stage, and in twenty-one of these manual removal of the placenta was found necessary.

In the case of B. C., on the seventh day of a perfectly normal puerperium a considerable hæmorrhage took place, which was promptly checked, but left the patient very weak. Some hours afterwards the uterus was explored and some placental tissue was removed. Some pyrexia followed, lasting for two days, and retarding convalescence for a week.

M. C., 5-para, affected with hydramnios, was delivered on Nov. 22, and five days afterwards some hæmorrhage occurred, but ceased after the removal of some decidual fragments with flushing curette.

M. M., 5-para, was delivered on Jan. 21, and suffered from slight *post-partum* hæmorrhage. On the fifth day there was a recurrence attended with rise of temperature. On exploring the uterus a polypoid projection was felt, so firm as to admit of only partial removal with curette; notwithstanding, a favourable though tardy recovery followed.

ECLAMPSIA.

Five patients during the year, either before or very soon after their admission, were attacked with convulsions, and two of the number died, being indeed in a hopeless condition when they first came under our care.

CASE 1.—M. D., aged twenty-six, 1-para, had three fits before

admission to hospital, and a fourth very soon after. Half a grain of morphin was given and a vapour bath, and the latter was repeated twice subsequently. Two days later labour came on, and she delivered herself of twins, both dead. Some *post-partum* hæmorrhage occurred, but was easily checked. She had three fits before admission and ten subsequently. Some of them lasted from four to six minutes, and in the intervals she was sometimes very violent, shouting loudly and throwing herself about.

She enjoyed an excellent convalescence, and has since been safely delivered in the hospital of a healthy, living child.

Case 2.—B. M'L., aged nineteen, 1-para, unmarried; admitted from North Dublin Union in an unconscious state, numerous fits having already occurred. Uterus size of six months' pregnancy, but no attempt at uterine action. Half a grain of morphin was given, a vapour bath, followed by croton oil, and saline transfusion, to two pints, a small quantity of blood being allowed to flow previously. In spite of these measures, from the time of her admission till her death at 2 o'clock a.m., there was but little cessation in the convulsions, the interval between them seldom lasting more than a few minutes.

Reference to my previous Reports will show that, hitherto, very favourable results have followed the line of treatment adopted in the above-mentioned cases. Saline transfusion I have not tried before, but many instances of its successful use in eclampsia have been recorded by others. The patients who died were in a hopeless condition at the time of their admission to hospital; but, on reflection, I regret, that, in the case of J. M., 9-para, I did not try the effect of free venesection before performing transfusion: and possibly forcible dilation of the cervix and rapid emptying of the uterus, combined with these measures, might have given different results. In connection with this very important subject I may be allowed to refer to the researches of Dr. Earl (then acting as Pathologist to the Rotunda Hospital) into the structural changes in the liver

in several cases of eclampsia. These were the first observations of the kind made in the United Kingdom, and have a special interest for us at the present day, when (as I believe) an unwise suggestion has been put forward that these cases have sometimes a renal, sometimes an hepatic, origin.

Case 3.—J. M., 9-para. At time of admission, 1 o'clock p.m., patient unconscious; very slight dilation of os. Pregnancy in the sixth month. Head presenting; not fixed. Urine very scanty, the colour of porter, and containing a quantity of blood and albumen. Eight fits had already occurred, so ½ gr. morphin was given, followed by a vapour bath, and a dose of croton oil. During the succeeding two hours five very long fits occurred, and a ¼ gr. morphin was given. Delivery took place at 9 p.m. the same evening without any improvement in the patient's condition, and profund coma, with very high pulse and temperature, ended in death shortly after. Two hours before death two pints of saline solution were injected into patient's arm.

Case 4.—Kate B., aged twenty-three, 1-para. At time of admission her pale, puffy face and swollen extremities attracted attention, as also her slow, hesitating manner in replying to questions. She complained of headache, pain in back and lower belly, and sickness of stomach. About one hour subsequently an eclamptic fit occurred, when she was immediately given ¼ gr. of morphin, and kept for twenty-five minutes in a vapour bath, during the administration of which she became very hysterical. About two hours later, she complained of dimness of vision, and another ⅓ gr. of morphin was given. The urine became nearly solid when boiled. In three hours later she was delivered of a small living infant. The placenta showed numerous patches of degeneration.

Case 5.—F. H., aged thirty-four, 1-para. First stage was unusually prolonged, the pains being very feeble and irregular. When the second stage was well advanced a change in the patient's manner and mode of speech attracted attention, and without any

other warning a fit occurred. Labour was immediately terminated by aid of the forceps ; morphin ($\frac{1}{4}$ gr.) was then given and repeated in two hours. There was no recurrence of the fits, and the convalescence was uneventful, though wakefulness was sometimes troublesome.

BREECH PRESENTATIONS.

Born alive	37
Born dead	7
(Two premature, one prolapse of funis. Two accidental hæmorrhage, one in locked twins.)	
Macerated	2
Assisted	37
Unassisted	7
Impacted	1
Total	47

During the year forty-five cases of presentation of the lower pole occurred, in thirty-six of which a living child was born. Of the stillborn children two were macerated, two were premature, two were associated with accidental hæmorrhage, one complicated by prolapse of the funis, and one (in a case of locked twins) underwent decapitation. In seven instances delivery was unaided. Prolapse of the funis occurred in one case, in which a living child was born. One case of impact breech is to be recorded. Traction in the groin proving insufficient, a leg was brought down and delivery completed. Mother and child did well.

In one of the cases (B. D., aged thirty-six, 7-para) complicated with accidental hæmorrhage (concealed), the patient at time of admission was collapsed, the membranes unruptured, os size of two shillings, and labour pains very slight. The patient's aspect was wretched, and the urine highly albuminous. The vagina was tamponed and a binder applied. In three and a-half hours later the natural efforts completed delivery. In a few days the urine was found free from albumen.

FŒTAL ABNORMALITIES.

Among these we had three cases of anencephalic fœtus, one associated with hydramnios, and one being a twin. In the case of hydramnios the presentation was oblique. Hydrocephalus was met with twice, and in one case increased palpably for a few days after birth. Spina bifida was also present in two children, both born alive. The deformity was situated in the lower dorsal and lumbar region in one; and in the other in the dorsal region only. The latter was associated with talipes, and the mother had hydramnios. Talipes was present in four cases. Two children had supernumerary fingers, in each case present on both hands. Five cases of cephalhæmatoma were noted, four of which occurred in unaided labours. One case of hare-lip and cleft palate occurred; and in three, subconjunctival ecchymosis was present, both eyes being affected in two of the number. One child was born alive with five coils of funis round the neck. In one instance the funis measured 42 inches. One infant was affected with the rare condition termed sclerema. Seven cases of ophthalmia came under observation, none of them severe; in four cases only one eye was attacked. Three cases of pemphigus, none of them severe, occurred amongst the infants.

MATERNAL SKIN AFFECTIONS.

As in former Reports, we have to record several cases, illustrating the two forms of erythema, occurring amongst parturient women, and which are scarcely mentioned in most obstetric works. One well-marked case of molluscum contagiosum came under notice in a multipara aged thirty-six. Chloasma uterinum was present in an unusually marked degree, forming large, brown patches on the wrists, forearms, and nipples of a healthy multipara, aged twenty-eight. Urticaria was once observed. Herpes occurred in three patients, once on the breast and twice on the lips. Relapsing

pemphigus, present on the legs only and during many months of the pregnancy, was observed in one case. Four patients suffering from acne, which they alleged was always aggravated during menstruation and pregnancy. Two patients presented accessory nipples.

PUERPERAL APHASIA AND APHONIA.

Last year I was so fortunate as to be able to lay before this Academy, with much fulness of detail, an account of the first case of puerperal aphasia which has been reported in this country, Invaluable aid in doing so was given me by two of my resident pupils, one of whom, Dr. Wilson, of Aberdeen, was good enough to visit the patient at her home some months after her delivery, and was thus able to give me an accurate account of her condition at that time. When my report was read a member of the Academy objected, in my opinion without any show of reason, to the case being described as "puerperal aphasia." This woman has recently been delivered of her second child under conditions almost identical with those which attended her first illness, and thus the correctness of my description has been abundantly verified. On the present occasion I wish to draw attention to a condition of aphonia which I have observed, attendant on childbed, in two cases especially. Both women were multiparæ, in good health—one of them especially so—and both averred that they were only thus affected during pregnancy, and recovered their ordinary voice shortly after its conclusion.

MANIA.

Case 1.—S. C., aged twenty, 1-para; normal labour; became maniacal on the second night, and temperature rose to 103°. Hyoscin bromide was given; uterus douched and curetted. Soon afterwards pulse and temperature fell, and mania ceased.

Case 2.—J. M., aged twenty-four, 3-para. Patient drunk on admission and bleeding profusely; two months pregnant. Uterus

was emptied ; the following day delirium tremens developed, and within 24 hours patient became insane and so violent that her removal to an hospital for mental cases was deemed necessary.

APPENDIX.

Through the kindness of my friend, Major Giffard, of Bombay, I am enabled to add brief notes of cases of pregnancy complicated with liver disease :—

ACUTE ATROPHY OF LIVER.

CASE 1.—*Induction of Labour.*—Rajoo, aged twenty-four ; Pariah ; second pregnancy. An out-case, admitted 7 p.m., January 26, 1879, in an unconscious state, having been so for three days. Is seven months pregnant. On examination, fœtal heart inaudible ; skin jaundiced as well as conjunctivæ ; hyperæsthesia present ; no fever ; pulse 104, and of fair force ; area of hepatic dulness considerably decreased, two fingers' breadth of dulness only being present ; bowels not moved for three days ; urine scanty and high-coloured, containing bile. It is stated by her friends that she had been complaining of giddiness and headache. Labour was induced at once, and podophyllin and diaphoretics and diuretics prescribed. She was delivered seven hours afterwards of a still female child weighing 110 tolas. She remained unconscious, and died at 2 a.m., 28th January.

CASE 2.—*Induction of Labour.*—Cullamah, aged thirty-six years ; third pregnancy. An out-case, was admitted into hospital at 6 a.m., 6th January, 1879, in a state of unconsciousness ; pulse weak, 120 ; skin cold and bathed in perspiration ; tongue foul ; bowels loaded ; conjunctivæ jaundiced ; hepatic dulness decreased $1\frac{1}{4}$ inches in the right mammary line. Is nine months pregnant ; urine high-coloured, and contained bile acids. Labour was induced, and podophyllin with diaphoretics and diuretics prescribed. She was delivered eleven hours after admission of a still male child (231 tolas). The patient remained unconscious and died at 6 p.m., thirteen hours after delivery.

Case 3.—*Labour Complex.*—Thoyee, aged twenty-eight; Pariah; third pregnancy. An out-case, admitted 30th April, 1880, complained of painful micturition. Is nine months pregnant. Conjunctivæ jaundiced; urine high-coloured and contains large quantities of bile pigment; area of hepatic dulness is diminished considerably, being only two fingers' breadth in the right mammary line. Motions contain bile; os admitted one finger; membranes entire; head presenting. Labour was accelerated by rupturing membranes, ergot, stimulating enemata, and Barnes' bags. She was delivered of a living male child at 7.30 p.m. by natural powers. On the following day there was some tenderness over uterus, slight pain on pressure over hypochondrium, and towards night she became very restless and delirious. She became comatose on the 2nd May, and died at 4.30 p.m., the temperature being 105° immediately after death. The urine was found to contain a large quantity of bile pigment and tyrosin.

Post-mortem.—Liver considerably atrophied, weighing only 22 ounces; the organ is very thin and flattened, particularly the left lobe; Glisson's capsule is shrunken and puckered; on section the hepatic veins are full of dark blood; the cut surface has a bright yellowish red colour.

Case 4.—*Labour Complex*; *Alcholia.*—Achamah, aged twenty-five; second pregnancy; Hindu Register No. 347. An out-case, admitted 6 a.m., 16th April, 1880, in a comatose condition. Is in her eighth month of pregnancy, and has been unconscious eighteen hours. Heart's action accelerated, 176; breathing laboured and irregular, 50 per minute; tongue furred; liver dulness considerably decreased, extending from below the nipple to the breadth of one inch; temperature 103·2°; conjunctivæ yellow; uterus is acting; fœtal heart inaudible; urine contains bile pigment and acids; no albumen, sp. gr. 1016. Labour was accelerated by Barnes' bags. The child, which presented by the feet, was extracted still at 11 a.m., and weighed 90 tolas. She became worse, and died at 3 p.m., her temperature half an hour before death being 106·4°. No *post-mortem* allowed.

Case 5.—*Labour Complex*; *Jaundice*; *Grave Diarrhœa*;—Mrs. M., aged twenty-six years; first pregnancy; East Indian.

An out case, admitted 9th October, 1882, suffering from diarrhœa of two months' duration. Has been in Coonoor up to two weeks' ago, and becoming worse, was brought to Madras; is very emaciated; uterus corresponds with the eighth month of pregnancy; fœtal heart audible; motions passed were copious, liquid, and contained large quantities of bile; temperature was 102°F., pulse 150. On the 10th had a severe rigor. and the temperature after it rose to 105°F.; the diarrhœa continued, and she became jaundiced on the 12th; area of hepatic dulness much less than normal. Labour pains set in on the 12th at 6 a.m., and she was delivered by natural powers of a still male child at 11 a.m.; the liquid amnii was stained yellow, the patient was drowsy and difficulty was experienced in getting her to swallow. She became comatose, and died at 11 p.m.

Post-mortem Examination.—Liver weighed 52 ounces, had fallen away from the side of the chest wall against the spine. On section, liver substance was diffluent, breaks down easily under the finger into fluids and shreds, and has a rhubarb colour; portal vessels are empty, bile ducts contain bright bile, and gall-bladder contains 2 ounces of tar-coloured thick bile.

Case 6.—*Labour Complex.*—Sunthanam, aged eighteen years; native Christian; 1-para. An out-case, admitted 5.30 p.m., 26th February, 1886; five hours in labour with her first child in the eighth month of pregnancy, the breech presenting. She was delivered at 11.35 p.m., by extraction, a premature male child being born alive. On the following morning the pulse was 90, temperature 98°F., and jaundice was noted. On the 28th she became comatose; conjunctivæ, nails and tongue are of a bright yellow colour. No distinct liver dulness detected; urine specific gravity 1010, with trace of albumen and bile colouring matter. She died at 4 p.m., 1st March.

Post-mortem.—Liver diminished in all directions, weight, 1 lb. 9 oz.; capsule shrivelled up; on section characteristic rhubarb colour. Gall-bladder contained a small quantity of greenish mucoid fluid.

NOTES ON AN INTERESTING FIBRO-MYOMA.

By A. J. Smith, M.D.

It is difficult to find anything new to be said about fibro-myomas ; hence it is with diffidence that I occupy your time this evening. We are all more or less satisfied with our treatment of easy cases, but when a case is met with out of the common, in which serious complications arise, I think nothing but good can come from an interchange of ideas.

A patient, æt. 50, came to the Gynæcological Department of St. Vincent's Hospital, early in last February. She said she was married twelve years. One year after marriage she had reason to think she was pregnant and consulted a distinguished gnyæcologist, who diagnosed a fibro-myoma, and kept her under observation for three weeks ; he refused to operate and he told her it would probably get smaller after the change of life. Five years ago I saw the patient, the tumour was then the size of a six months pregnant uterus, filling out the pelvis but causing no pressure effects. As there was no urgent indication for operation I refused to operate. I did not see the case again until she returned this February.

Present condition.—The patient is of small stature, is greatly emaciated, having a typical "facies ovarii ;" the abdomen is much distended, the tumour is pressing on the diaphragm, and a large mass projects through the vulva. Examination under ether gave little assistance.

It was obvious that the patient could not live long in this condition. I represented the risk ; I reminded her that five years ago her case appeared to me so difficult that I did not recommend operation, that now she was much worse, the tumour was larger, and her physical condition was much

impaired. Determined to give her a chance I opened the abdomen on Ferbuary 24th. The abdominal walls were very thin, the muscular layers were atrophied. The anterior portion of the tumour presented no unusual features, but from the posterior surface there hung coils of small intestines and omentum. The tumour so filled the pelvis it could not be drawn out, this increased the difficulty. I followed as closely as possible the ordinary technique, and when at length I got the tumour out I was face to face with the following difficulties :—

1st. Both lateral aspects of the true pelvis were stripped of the parietal peritoneum up to the brim ; the large vessels and ureters were plainly to be seen beautifully dissected out. Two flaps of peritoneum only remain, that removed from anterior and posterior surfaces of the tumour, but these were much too small to cover the denuded area.

2nd. There was extensive oozing from the raw surfaces although the main arteries were controlled.

To control the hæmorrhage was now the difficulty. I took up area after area in the most systematic fashion, and surrounded it with a purse string suture. I employed sponges wrung out of hot water, but all to no purpose, the weeping would not stop. I had no faith in Adrenalin solution. As the patient was now two hours under operation, I resolved to pack the pelvis with sterilized gauze, and bring the ends out through the abdominal incision. The anterior and posterior flaps I brought up to the abdominal wound and stitched them there with mattress sutures, thus making a funnel through which the gauze passed.

The abdominal wall was so thin, and the patient's condition so run down, I thought it advisable in stitching the abdominal wall to leave in a row of buried sutures.

The patient was then placed in the Trendelenburg posi-

tion in bed, a stimulating enema was ordered, and a hypodermic tabloid of strychnine injected under the skin.

After operation.—The general condition of the patient was better than I expected. The dressings got saturated with blood and required to be changed within a few hours. The second pad was not saturated, and I was able to remove the plug under gas the following morning.

The ordinary after treatment was followed. On the evening of February 25th I found the patient's condition unsatisfactory, pulse 128, temperature 100° F. I ordered calomel, grains v., to be followed the following morning by a turpentine enema, but without result. I then prescribed soda sulphate in one drachm doses every fourth hour, to be followed in the evening again by an enema, but without result. Vomiting now set in, and the patient's abdomen became distended. On Februray 27th, the third day after operation, the vomiting was almost continuous, coming up silently and without effort ; pulse 136, temperature at 8 p.m., 97° F. She was so weak that the house physician was afraid to wash out her stomach. I saw her early the following morning, and as every attempt to remove the bowels by enemata failed I resolved to give one myself with Byrne's long tube ; this I had much difficulty in passing (a kink in the rectum was formed by the stitching of the posterior flap of peritoneum to the abdominal wall) ; after patient efforts I succeeded, the hoped-for flatus did not escape. A turpentine enema was now administered with good result. A troublesome diarrhœa now set in, which caused much anxiety ; it was controlled however by a lead and opium pill, and an enema of starch and opium (30 m.) On March 1st, the patient's condition was much improved, the pulse rate began to fall, and from this on she made an interrupted recovery.

Report on specimen by Dr. Earl :—

The tumour measures eleven inches in length, and nine and

a half in breadth. It is not possible to distinguish the tumour from the uterine wall as no trace of the cavity of the uterus can be found. An attempt to trace the cavity from the Fallopian tubes failed as the lumina of the tubes are obliterated.

Underneath the peritoneum is a layer composed of fibrous and smooth muscular tissue in varying amount.

This layer is thin except in the neighbourhood of the fundus, and is loosely attached to the fibrous tissue, which breaks down readily with the finger, to both the peritoneum and the general mass of the tumour. There are also some muscular bands connecting this layer with the tumour.

The tumour is traversed by several septa of loose connective tissue, and at these septa it readily splits into patsr. The tumour is soft in consistence, and is histologically a fibro-myoma with a good deal of fatty degeneration. Some very large blood vessels can be seen on cutting into it.

The incision is in the anterior aspect.

Remarks.—This case is another example of the folly of telling patients their tumours will get small after the change of life. As a matter of fact it only began to grow rapidly three years after her menopause.

I should like to hear from members what methods they adopt for the control of hæmorrhage in cases such as these ; whether the plug should have been passed through the vagina or through the abdominal wound. I was influenced in selecting the wound route by the fact that if I passed the plug through the vagina, the peritoneum would be liable to infect after its removal.

I think it is a matter of great interest that such an extensive area of the parietal portion of the pelvis peritoneum could be removed with apparent impunity. There was no way I could think of to cover it, the omentum was only the merest rag, the tumour had pushed it completely out of the way.

As to the urgent intestinal symptoms after operation I must confess I took a gloomy view. I considered a loop of intestine became adherent in an unfavourable position in the large denuded tract, and that there would be little hope of relieving the distress by a secondary operation.

The success of the passage of Byrne's tube is a fact, I think, which should not be lost sight of in future emergencies.

SUPERNUMERARY NIPPLE.

By S. W. Allworthy, M.D., F.R.C.S.

On the 27th April I attended Mrs. T., who was delivered of a healthy male child. On examining her breasts I found the left mamma much larger than the right, with a well-developed nipple and areloa in the usual central position, and about two and a half inches directly underneath a second smaller nipple with a dark figmented areola. Colostrum with milk was easily expressed from both nipples, and they became slightly erect with mechanical excitement. Mrs. T. informed me afterwards that the lower nipple drained the milk from the upper, and in consequence caused some little inconvenience. It would appear, therefore, that there were not two separate and distinct portions of the mammary gland for each, but that the lactiferous ducts of the whole gland intercommunicated with both nipples.

A small supplementary nipple is not an uncommon anomaly, but the development in this case was, I believe, rather more perfect than in those usually met with.

A CASE OF ECLAMPSIA, WITH *POST-MORTEM* DELIVERY BY FORCEPS.*

By Walter P. Cockle, M.D.

In March, 1902, I was called to attend a woman in confinement. She was of the labouring class, about 46 years of age, had several children, the eldest of whom was about 17, and there was no history, as far as I could gather, of any trouble at previous births.

It was stated that she had been having fits most of the night, and that she was now in a bad way. I first saw her about 9 o'clock in the morning, in fact, one hour before she died, and was told she had been having convulsive seizures on and off since 3 a.m., and that during the attacks she had been very violent, literally tearing pieces out of the arms of the two women who had to hold her down.

She was now scarcely conscious but could be roused ; in appearance she was cachetic and looked puffy about the face and eyes ; the temperature was subnormal and the pulse slow, while the bowels had not been moved for a fortnight, and previous to that at various intervals of from fourteen days to three weeks. She had micturated (in the bed) shortly before I saw her ; I had not been able to get a specimen of the urine.

On palpation I found the child's back was to the left and in front, and on examination that the os was fully dilated, the membranes ruptured and the head presenting, in short everything was ready for the expulsion of the fœtus, but there

* Read before the Section of Obstetrics of the Royal Academy of Medicine in Ireland, on March 20, 1903.

were no uterine contractions and I could not expel it manually, nor stimulate the womb to contract. Besides, examination was followed by a convulsive seizure.

As she had not been able to get into hospital, and as she struggled much during examination, and as labour was far advanced, and also to avoid the risk of incurring another fit, I determined to get chloroform and deliver quickly with forceps, as it appeared to offer the best chance both for mother and child.

Having ordered some stimulants to be given her with a view to improving the heart, and that she should be rolled in warm blankets, I withdrew for that purpose ; but on my return I found that the heart had failed rather suddenly, the occurrence taking place at the instant of my arrival at the house.

As I was assured most positively of the accuracy of this, and as indeed everything seemed to bear it out, I determined to have a try and save the child if possible, and so I applied forceps and had it on the bed within not more than two minutes of my arrival.

I had not been able to hear the fœtal heart before birth ; the child was, however, extremely well nourished and developed, and had all the appearance of recent vitality and asphyxiation. Artificial respiration was persisted in for a considerable time, but unfortunately it could not be resuscitated.

In presenting this case to the Obstetrical Section I regret I cannot add anything new to the etiology or treatment of this, at present very fatal disease, my object being rather to draw attention to the possibility present in these cases of saving infant life, although unfortunately in my instance it was not successful.

There were two things worthy of mention in connection with this case, first, that you must be present at the actual

moment of death, as in a case of the kind where every minute is of the utmost importance you cannot rely upon the evidence of other people ; and secondly, the extremely healthy, if I may use the word, even robust condition of the child compared to the mother, convinced me of what a good chance it would have had had the fatal termination occurred later.

To the physician who has decided upon trying to save the life of the child *post-mortem matris*, the method of Cæsarean section is always open, while that of forceps only conditionally. There is no doubt about Cæsarean section being the most far-reaching operation, since not only is it applicable to all cases from which forceps are excluded, but it also might be adopted where they can be used. Though Cæsarean section only can be tried in cases where the os is not dilated or the pelvis is abnormally small or contracted, or in fact in any case where obstruction or delay would present in the use of forceps, yet, with a fully dilated os and the head well down in the normal pelvis, as ordinarily preparatory for the second stage of labour, forceps can be used with great advantage and speed.

Comparing the two methods in a given case in which either might be adopted, I think, perhaps, that forceps is to be preferred, because not only is it as rapid and sure an operation as Cæsarean section, but it is infinitely cleaner, since it is practically bloodless, and besides it leaves behind no disfigurement of the mother, and is therefore less repugnant to the minds of the relatives, as well as to the operator himself, both before and after their use. More especially would this be the case if the child has not survived, as then to the lay mind the operation might appear in the light of an experiment, and this last point is of no small importance, as the relatives are often the determining factor as to whether one interferes or not.

But it may be suggested that the cases in which forceps

could be used are very few, and even in these they are not necessary. The cases where Cæsarean section is alone applicable are all, with the exception of undilated os, abnormal labours, and are, therefore, the exceptions and not the rule —besides in private practice the obstetrician is more often armed with forceps than with a scalpel.

I put forward the recommendation for the use of forceps where possible, not because I think it more effective, but because I think it a nicer proceeding under the circumstances, and a course of action worth remembering in similar cases to mine. Considerable success has already been obtained in *post-mortem* delivery in the comparatively few cases of it recorded.

However, to be brief, what impressed me most in my case is, that the hope of saving infant life in eclamptic cases, and indeed in some others as well, need not be abandoned when that of saving the mother is.

SECTION OF PATHOLOGY.

UNREDUCED SUBCLAVICULAR DISLOCATION OF THE HEAD OF THE HUMERUS.*

By Edward H. Bennett, M.D., F.R.C.S.I.;
Professor of Surgery in the University of Dublin; Surgeon to Sir Patrick Dun's Hospital, Dublin.

I submit to the Academy a dissection of a shoulder-joint deformed by old unreduced dislocation of the head of the humerus, and with it a cast of the limb taken before its dissection. Of the life-history of the case I know nothing, and speculations as to the reason for its having escaped reduction are useless. The body was that of an aged female. A view of the specimen and of the cast makes it evident that the dislocation is to be named "subclavicular." The upper extremity of the humerus is seen to be placed directly beneath the clavicle, and to be remote alike from the glenoid cavity of the scapula and the coracoid process. The cast shows also a feature of the deformity of the limb characteristic of the subclavicular dislocation, as contrasted with the intra-coracoid and other forms of antero-internal dislocations.

The limb lies in contact with the side of the thorax; to use the description of Malgaigne, "the arm is generally glued against the trunk." We can, in the cast, see this attitude of the limb, and the bearing of the tumour formed by the head of the bone. Looking at these relations of the parts chiefly involved in the dislocation, one is forced to the conclusion

* Read before the Section of Pathology of the Royal Academy of Medicine in Ireland, on November 7, 1902.

that when the dislocation occurred the whole, or nearly the whole of the capsular ligament of the shoulder was ruptured, or stripped from its attachment to the bone around the glenoid portion of the scapula, necessarily most completely on the outer side of the joint.

The specimen shows that the head of the humerus passed into the bottom of the sub-scapular fossa, pushing before it, and to the inside, the sub-scapular muscle, which, with its tendon is entire. Before the dissection had disclosed these parts, it was only evident that the dislocated head of the humerus could not be felt in the axilla, nor probably through its wall. The long head of the biceps muscle was torn by the dislocated humerus, and is adherent to the bicipital groove. I obtained this specimen in July, 1900, and it lay by me undissected for a time. In the spring and summer of 1899 I met two cases of dislocation in the living, which agree in all particulars with it, so far as one can trace the similarity between the living and the dissected specimen. I should say that before 1881 I had been well experienced in the reduction of shoulder dislocation by the method of the heel in the axilla. I knew that to succeed by that method in difficult cases it was necessary to bring the heel, carried into the armpit, into contact with the displaced head of the humerus, and to use it as a fulcrum on which to lever the dislocated bone into its place. I may now mention that in attempting this movement I could not reach the head of the bone in either of the cases I am recording, nor indeed, could I pass the heel at all upwards into the armpit. The arm glued to the side absolutely prevented this.

After I had heard Kocher, at the International Congress in 1881, describe his method of manipulation in treatment of shoulder dislocations, I applied it here with invariable success in reducible antero-internal dislocations, until I met the two cases I now submit. I did not of course, apply it

to posterior dislocations, for which it is manifestly unsuitable, of which I met in the time two cases.

The first of the cases I would now record was that of a powerful man, over six feet in height—a gentleman constantly engaged in active country life. He was mounted on a young horse, going to a meet of hounds, when someone handed him a paper. To read this he let his reins loose on the horse's neck, and as he read the wind fluttered the paper, and the horse made a sudden plunge, throwing his rider heavily on the shoulder. Being near surgical help, he almost at once was placed under treatment by a very able and experienced surgeon, who got to help him three or four of the Royal Irish Constabulary, whose barrack was at hand. The attempt failed, and the patient telegraphed to me to meet him at one of the private hospitals that evenings. I found that the dislocated limb presented the feature of an arm glued to the side, and that I could not reach the humeral head in the axilla with my fingers, while the tumour beneath the clavicle was distinct, though masked by powerful muscles. I tried the movements of Kocher's method, and failed. I determined, as the patient had a bad few hours both with his fall, the attempt at reduction tried in force, and his railway journey, that I had better let him rest at night, and be ready in the morning to take an anæsthetic, and I could have with me sufficient assistance. In the morning I found that Kocher's movements again failed, and the failure was repeated when ether was fully given. I then tried the heel in the axilla, but do my best I could not reach the head of the bone, nor could I by traction bring it down to meet my heel. I then changed the method, making traction, against efficient counter-extension, on the arm abducted downwards and outwards, with lacs fast to the wrist and above the elbow-joint; by alternate rotation back and forwards, while I kept up the strain on the limb, I made it move with what is

best described as a screwing movement, which ended in a few minutes in a complete reduction.

The next case is of the same kind. The patient was a man over six feet in height, who had, in his youth, been a great athlete ; he is now past middle life. I approached the case with misgivings. Already five weeks had elapsed since the occurrence of the injury—a heavy fall on the shoulder, and already five attempts had been made at reduction under anæsthesia, and with four or five surgeons present each time, without any signs of reduction appearing. The features of the injury were the same as I have just now put before you—a tumour under the clavicle well to the inside of the coracoid process, an arm glued to the side, and the axilla closed by the shaft of the humerus, which prevented the hand or the heel from reaching the head of the bone. When I had the patient fully under ether, I tried Kocher's movements, without result, except that probably the head of the humerus was somewhat freed from adhesions. I tried the heel in the axilla, as in the last case, and because I had been so familiar with the method. I could not enter the axilla at all with my heel. I then tried the extension on the arm extended downwards and backwards. I found on making the screwing movements as before, that the head of the bone came down, and was slowly reduced into the joint. I confess that the result astonished me. I believe that the head of the humerus could not get inwards to the distance at which it lies in the specimen without a great rupture of the capsule first on the inside of the joint, through which the bone escapes and passes beneath the sub-scapularus, and again by the tearing away of the outside of the structure to permit the bone to take its new position. We see in this dislocation that the bone passes right away from the glenoid process of the scapula. In the other antero-internal dislocations the humerus rests by its groove between the head and great tuberosity

on the glenoid border. The varieties of these lesions depend on the height or lowness of the contact between the bones in this groove and on the degree of rotation enforced on the shaft of the bone by the extent of untorn capsular ligament.

Looking at a model in which the parts of the ligaments are taken by elastic cord and membrane, we can see the reason why Kocher's proceeding fails, there being no structure left to act in maintaining the tenison between the glenoid border and the humeral groove. Farabeul's experiments demonstrate this point also, for if the external parts of the capsule be divided, the leverage necessary to the production of Kocher's reduction fails.

MULTIPLE CAVERNOMATA OF THE LIVER.

By H. C. Earl, M.D.

Cavernoma of the liver is a well recognised and not very uncommon condition which occurs both in man and in the lower animals. In the human subject the condition is most common, perhaps, in elderly people but may be met with at any age. Orth and others have met with cavernomata in still-born children. They may occur singly but are often multiple. They have a dark purple colour on account of the blood they contain, and may occur either on the surface of the liver or in its substance. They vary in size, some being barely visible while others are as large as an apple. They never cause any enlargement of the liver. The larger examples have a fibrous capsule separating them from the surrounding tissue, but this capsule is not found in the smaller.

Structurally they consist of a tissue resembling the cavernous tissue of the penis, *i.e.*, a number of spaces of varying size, whose walls are formed of fibrous tissue and lined by endothelial cells. Smooth muscular tissue has been discovered in their walls, but I have never been able to satisfy myself of its existence in such cases as I have investigated. In some cases liver cells have been found in the walls of the spaces. This was so in the cavernomata found in new-born children and also in some of the cases met with in later life. Both the typical form, with connective tissue walls, and the less usual form with liver cells in the walls, have been met with in the same liver.

The specimen I show is part of the liver of a man aged

about 60 years. It shows a large number of cavernomata, both on the surface and in its substance. They vary much in size, the largest occupying the whole Spigelian lobe and extending beyond its limits into the surrounding tissue. None was found in the left lobe.

There has been considerable difference of opinion as to the pathogenesis of the condition. It cannot be considered a tumour, in the ordinary sense of the term, as no enlargement of the liver is ever produced, but merely a substitution of the normal liver substance by that of the cavernomata. The view most generally held is that the condition has its origin from dilatation of the hepatic capillaries. The fact mentioned above, that hepatic cells are sometimes found in the walls of the cavernous spaces, favours this view. The dilatation of the capillaries is considered by some writers to be the primary condition, and due to local vascular derangement producing congestion, the fibrous thickening of the walls and atrophy of the liver cells occurring subsequently, while others considered the atrophy of the liver cells is primary and the dilatation of the capillaries secondary.

Jores has produced in cats, by narrowing the hepatic view, a condition of extreme dilatation of capillaries in several parts of the liver. The affected parts of the liver had, macroscopically, an appearance very similar to that found in cavernoma.

MULTIPLE ADENOMATA OF THE LIVER.

By H. C. Earl, M.D.

The specimens I shew you were taken from a liver affected with very marked cyanotic atrophy. None of the tumours was to be seen from the surface, but on cutting into the organ a circular green patch, about half an inch in diameter, of a bright green colour and sharply marked off from the surrounding tissue, was observed. On further examination a considerable number of tumours was found. They were smaller than the first found, some being barely visible, and varied in colour, from greenish to normal liver colour.

On making sections of the largest tumour it was found to consist of cells having the closest resemblance to normal liver cells. It was marked off from the surrounding tissue by a thin connective tissue capsule. A small mass of fibrous tissue, containing arteries, veins, and ducts lay in the interior of the tumour, and from this septa ran which divided the tumour into several lobules and conveyed vessels and ducts. The cells at the margins of the lobules were arranged very much as normal liver cells are but less regularly. Occasionally the cells formed the linings of tubular spaces which contained bile. In the central part of each lobule the cells all formed the lining of spaces while generally containing bile. Bile was also found abundantly in the bile capillaries and much bile pigment was found in the cells. Such of the smaller tumours as were examined shewed a still greater resemblance to normal liver tissue. There were not encapsulated nor were they divided into lobules. A little bile

was found in their bile capillaries. Though the liver was in a condition of advanced cyanotic atrophy no sign of this was to be observed in any of the tumours. No tumour was found in any other part of the body, the organs shewing only the changes usual in advanced cardiac disease.

A CASE OF TUBERCULOSIS OF THE CHORIOID.*

By Arthur H. Benson, F.R.C.S., and H. C. Earl, M.D.

A girl, æt. 14, was sent to me on May 1st, 1902, in consequence of defective sight in the left eye. The right eye was normal in sight and appearance, and the child, though of a slight and delicate build, was said to be in good general health.

She stated that the left eye became affected on Holy Thursday last (March 27th, 1902), and on April 10th she consulted Dr. Cox for what seemed to be a slight cold in the eye. As this did not get better he sent her on to me on May 1st.

There was slight circumcorneal vascularity, tension was normal, and sight was greatly reduced, so that she could only count fingers with the left eye at 10 c.m. There was no pain.

The fundus presented the appearance of a large whitish grey detachment of the retina surrounding the disc; with, in places, a more definite exudation. I regarded the case as one of sub-retinal exudation inflammatory in origin, and not a simple detachment of the retina. There were no hæmorrhages anywhere, nor had the retinal vessels the dark thready appearance usually seen in detachment of the retina. The vitreous was rather hazy, so that it was not easy to see the details of the fundus with accuracy, but one large white exudation-like mass at the outer side of the disc was so dense as to suggest the possibility of it being opaque nerve fibres, or one of those dense masses that are sometimes seen in albumenuric retinitis.

* Read before the Section of Pathology of the Royal Academy of Medicine in Ireland, on November 7, 1902.

The urine was tested and found to be free both from sugar and albumen.

After some weeks the eye seemed better, and the vitreous cleared considerably, and she felt the eye better for a time. About the middle of June the eye got worse, and there was considerable vascularity round the cornea and the detachment of the retina seemed to be total. Tension was slightly below normal. I did not see her again for over three months as she was in the country. When she returned on September 26th I found the appearances quite changed. The vitreous now was more than half full of a cream-coloured mass, like a glioma. The pupil was dilated, and through it this whitish reflex could be seen with the naked eye. I then, for the first time, suspected tuberculosis, and advised enudation, which I did on October 11th, and the specimen was sent to Dr. Earl.

No tubercular history can be elicited. Her father died of endocarditis, and on his side there was a strong tendency to diabetes. Her mother died of albumenuria and puerperal convulsions. Neither her parents nor any relative, as far as I can learn by enquiry, have suffered from any tubercular affection. Nor was the subject of this communication ever supposed to have had any tubercular affection till her eye was attacked, nor has any other focus been since discovered.

The condition of the right eye is normal.

This affection is found occurring under two forms—(1) the solitary or conglobate form which is very rare, and (2) the multiple disseminated or miliary form which is much more frequent, and is usually associated with general miliary tuberculosis.

The case which Dr. Earl and I are showing to night is one of the first or conglobate variety which makes its appearance as a neoplasm, originating in any part of the fundus (but usually not far from the disc) and grows till it fills the

globe and may in time penetrate the sclorotic, and form an extra ocular tumour.

It usually consists of several smaller tumours which coalesce to form one larger one, in the centre of which caseation occurs.

This rare disease is essentially one of youth, in our case the age was 14. Unlike the miliary it runs a chronic course, and is very often associated with intra-cranial tuberculosis, or similar disease of some of the internal organs.

In rare cases (and our case seems to be one of these) no tuberculous disease can be clinically discovered in any part of the individual, except in the eye. The prognosis is in all cases bad, for in addition to the loss of the eye, the danger of brain or other implication is very considerable.

The vitreous chamber was filled with a white mass, which showed to the naked eye a few small patches of yellowish opaque material. These opaque patches were found on microscopic examination to be caseous areas. The rest of the tissue in the vitreous chamber was a very cellular fibrous tissue, studded with giant-celled and epithelioid-celled tubercles. The retina was detached and lay folded up in the interior of the new growth, which was easily separated from the sclerotic except at one point where it was closely adherent.

SARCOMA OF LEFT SUPRARENAL BODY WITH A SECONDARY INTRATHORACIC GROWTH WHICH CAUSED NARROWING AND THROMBOSIS OF SUPERIOR VENA CAVA.

By H. C. Earl, M.D.

The specimens were taken from the body of a woman aged 52 years. Her clinical history is as follows :—

For six or seven weeks before admission to hospital she had suffered from swelling of the face and neck as well as some breathlessness on exertion. On her admission to hospital her face, neck and arms were ædematous. The superficial veins of the arms and upper part of the thorax were distended with blood. There was no ædema of lower extremities. Her heart was normal. There was an air of dullness over the upper part of the right lung in front, over which the breath sounds were feeble. There was no abdominal tumour to be found by physical examination. Her death took place rather suddenly after a short stay in hospltal.

On making a *post-mortem* examination the following pathological conditions were found :—There was a tumour of the left suprarenal body. It was nearly spherical and about six inches in diameter. It was very soft, indeed the greater part of it was quite diffluent, so that the greater part of it was lost during its removal from the body. The tumour had pressed the kidney downwards and slightly outwards, and had flattened its inner margin above the entrance of the renal vessels, but the kidney was not invaded by the tumour. The lymphatic glands lying alongside the aorta were much enlarged and very soft. The right suprarenal body and the other abdominal organs were normal.

In the thorax each pleural cavity contained about 30 ozs. of clear fluid. There was a tumour of the same macroscopic characters as that in the suprarenal body, which lay in the upper lobe of the right lung near its roots and which also involved the pericardium, the wall of the right auricle, and to a slight extent also the wall of the superior vena cava just above the auricle.

The heart was normal. There were some small thrombi in the right ventricle. The superior vena cava was greatly narrowed by the pressure of the tumour so that it was not possible to pass the little finger into it from the auricle. The superior vena cava contained a thrombus which did not reach down as far as the auricle. This thrombus was partly white and partly red, and completely occluded the vessel except for a small portion along its right side. The veins at the upper part of the thorax and those of the thoracic wall were much distended, but were not thrombosed. The left lung was normal. The tumours in the suprarenal body in the glands, and the intrathoracic growth, all shewed the same structure. They were sarcomata, the cells being, as a rule, round, but some short spindle-shaped and oval cells were met with. The vessels had very thin walls, and hæmorrhages had taken place into all the tumours. There was a great deal of necrosis in the suprarenal tumour, and none of the normal structure of the body was present. The other tumours also showed patches of necrosis. In the sections made of the lung tumour the branches of the pulmonary artery were seen to be thrombosed and the thrombi in these were sarcomatous.

ABNORMAL DEPOSITS IN THE JOINTS.*

By Edward H. Bennett, M.D., F.R.C.S.I.;

Professor of Surgery in the University of Dublin; Surgeon to Sir Patrick Dun's Hospital, Dublin.

In the year 1850, Professor Redfern writing on "Abnormal Nutrition in the Human Articular Cartilages," describes the occurrence of carbonate of lime as a deposit in the cartilage of the heads of both humeri of a subject which presented "disease of nearly the whole articular cartilages in the body." The disease so generally distributed through the joints of this body was that so familiar to us in this city as chronic rheumatic arthritis.

In 1877, the Curator of the Pathological Museum of Vienna, Professor Heschl, addressed a letter to the Pathological Society of Dublin, asking for information with reference to the nature of a deposit which he had at that time observed in a case of chronic rheumatic arthritis, using, however, the term "arthritis deformans" as the name, then and now the German synonym for ours. He wrote:—"Some weeks ago I found in a case of arthritis deformans the articular cartilages of the knee and feet to present here and there glistening points and spots of the irregular extension of the disease. They appeared on microscopical examination as round, and also as striped groups of crystalline needles resembling those which are described, and drawn, as the mixed urates found in the cartilages, or forming the gout nodes occurring in the true or English gout, but the

* Read before the Section of Pathology of the Royal Academy of Medicine in Ireland, on February 27, 1903.

chemical examination proved them to be not urates, but phosphates and carbonates. I know no one amongst our most experienced practitioners of Vienna who has ever seen the genuine English gout, and there does not exist a preparation of it in our Pathological Museum. Even our practitioners have declared that they did not attach much or any credit to the reports of these urates in gout. I certainly do not share such extreme and evidently erroneous opinions, but notwithstanding, I wish greatly to see one case of your peculiar gout, and consequently I solicit your assistance." I sent to Professor Heschl a specimen of true gout over which he seems to have been enraptured, and I know that it is now carefully preserved in the Vienna Museum.

In 1882, I found a specimen somewhat like that referred to above, in which the deposit was composed of ammonio-magnesian phosphate with but little carbonate of lime. I now submit the most complete example of carbonate of lime deposits in joints that I have seen.

The subject was an aged male sent in from one of the unions last summer for my class in operative surgery, and, of course, I can give no life history, nor any clinical detail with reference to it. The chief point of interest in the case is the close resemblance to the naked eye which the deposit presents to that of true gout, of which it does not in reality show a trace.

The operations on which I was specially engaged when dealing with this body were the disarticulations of the limbs. In passing upwards from the distal joints of the extremities I noticed a very trivial amount of chronic rheumatic arthritis in the joints of the hands and feet, and in the knees and elbows. On the hip joint being opened, I was at once attracted by the white markings, and put the question to myself, Can this be gout distributed in a mode exactly the reverse of the ordinary ? I found in going into details as to

distribution that the deposit was traced symmetrically in the hips and shoulders, in the sterno-clavicular joints, and in the tempero-maxillary. There was none in the balls of the great toes, nor were there any trophi present in the pinnæ of the ears, nor any white lines in the pyramids of the kidneys. That is to say, the positions occupied by the deposits were the very reverse of those in which one would meet them if the disease were gout. I tested them by the murexid test, which is readily applied in the dead body without special preparation. A tiny drop of fuming nitric acid placed on the articular cartilage, where it is marked with the deposit, and allowed to rest for a few moments, until it ceases to fume, will stain bright orange red when held over the unstopped mouth of a bottle of strong liquor ammoniae. This experiment failed in this case. I did not rely on my own examination, either chemical or microscopical.

Professor Reynolds examined the deposit for me, and reports :—" Having cleaned your little specimen from fatty matter, which previously prevented attacks, I find that the granular material is easily acted on by hydrochloric acid, and evolves a very respectable amount of Co_2 gas as the granules dissolve. Therefore the substance is a carbonate. The solution is HCl when treated with excess of ammonia (to separate the inevitable phosphate) and filtered, gave a perfectly definite precipitate of calcium oxalate, therefore calcium is present in addition to that in the state of phosphate, so the granules consist of calcium carbonate of chalk." Professor O'Sullivan has examined the deposit for me microscopically, and has given me the mounted slides. Under low powers the substance appears as minute granular masses bedded in the tissue, but the granules viewed with an immersion lens, instead of being amorphous, are seen to be flat rhombic crystals very regular in form, but very minute. The deposit is, therefore, a crystalline chalk.

I submit to the Academy the original specimens, and with them a water-colour drawing, taken while the colours of the tissues and of the deposit were unspoiled by the preservative fluids, formalin solution and subsequently spirit, which have kept them from decomposition, but have spoiled the contrast of colours seen in the recent specimens. As yet I have not seen anything to help us towards the clinical diagnosis of this rare disease.

FRACTURE OF THE ASTRAGALUS.

By Edward H. Bennett, M.D., F.R.C.S.I.:
Professor of Surgery in the University of Dublin.

In discussing the subject of fracture of the astragalus Rieffel estimates the total of recorded cases of these injuries at about seventy examples.

In searching these records as fully as I can I have failed to find a single instance of osseous union of such a fracture. Our very latest writer on the subject, Helferich, says, "fracture of the astragalus rarely occurs as an isolated injury, being almost always combined with injuries of the knee joint or of the tarsus." Another author, Ballenghien, in a monograph on fractures of the tarsus, writes: "One never meets a fracture of the astragalus without that one of the fragments or even the entire bone is at the same time displaced."

It is possible that certain of the examples of exceptional astragalus which I have recorded in the discussion of the ostregonum tarsi are united fractures, but putting these aside, although I present to the meeting some sixteen examples I think I am justified by its rarity in placing on record this united fracture of the astragalus in which no displacement whatever has occurred.

The museum of this college contains two specimens of fracture of the astragalus which appear to be of the most common form, vertical fractures passing through the trochlea and breaking the body of the bone into two or more pieces. Both were removed during the progress of suppuration of compound fractures. In both these cases the fractures were

limited to the astragali, neither the bones of the limb above the ankle nor of the foot beneath were broken.

Of the form of fracture seen in compound dislocation of the ankle, I present a specimen which Sir William Thomson kindly gave me some years ago. In it the astragalus is displaced backwards and inwards leaving its decapitated head behind it in relation to the navicular bone. This injury was caused a man fouling his foot in the wheel of a traction engine in motion. A primary amputation has preserved the specimen for us.

In the united specimen I submit there is a single line of fracture passing through the whole thickness of the bone and perfectly united by bone without any displacement. But for the indelible trace of the injury in the articular cartilage of the trochlea above and in the concave surface which corresponds with the posterior facette of the os calcis beneath the presence of an united fracture could not be recognised. On the upper surface the line of fracture starts at the tubercle of the bone and passes forwards and inwards to reach the inner margin of the trochlea and passes down through the facette which articulates with the inner malleobus ; beneath the line passes forwards from the tubercle until it enters the tunnel where it joins the upper line. It is difficult to understand the mode of production of such a fracture for the cause must have been a shock or blow taking effect only on the inner and posterior part of the ankle, no traction on the lateral ligament of the ankle could have done it, as I believe the detachment of the ostrigonum is produced.

With this specimen I have preserved the remaining bones of the foot to show their freedom from injury, and I verify the similar freedom of the bones of the leg and of the knee joint. The specimen being obtained in the dissecting-room no history of the case in life could be obtained.

PRIMARY CANCER OF THE LIVER.

By W. J. Thompson, M.D.

Cancer of the liver is not by any means an uncommon disease; but primary or secondary cancer of the liver at the age of 21 years is rarely met with, and so we considered this case of sufficient interest to bring before the Pathological Section. Murchison in his historic record of cases of cancer of the liver mentions only two cases of primary cancer, one at the age of 42 years and the other aged 50. He also records a case in a patient aged 24 years who had well-marked pyrexia, but at the autopsy there was a cancerous mass found in the neighbourhood of the left kidney, which extended down along the vessels to the testicle. He states that when cancer first commences in the liver other parts, notably the mediosterial, inquinal, and cervical glands and the lungs are apt to become affected. Coming to more recent times Dr. Hale White, in Professor Allbutt's System of Medicine, deals with statistics relative to cancer of the liver very fully. He states that at Guy's Hospital during the nine years 1885 to 1893, out of 4,200 *post-mortem* examinations secondary cancer of the liver was found in 136 cases, 126 of which were carcinomatous. He further states that during twenty-four years, from 1870 to 1893, out of 11,500 *post-mortems* made at the same hospital, only eleven cases of primary cancer were discovered. The age of the youngest patient was twenty-three years. He also states that out of the seven cases recorded in the Transactions of the Pathological Society, London, during a period of twenty sessions, the youngest case reported was thirty-three. He

makes a *remarkably interesting statement* when he says that in none of the recorded cases of primary cancer of the liver was there any family history ; also that the greater number occurred in men.

Notes of case.—Mary R., age on admission 21 years, was admitted to Jervis Street Hospital on the 31st October, 1902. Her family history, which was reliable, was good, none of her people having died from cancer or tubercular disease, nor was there any history of lunacy in the family. She had always been strong and healthy, and, until shortly before admission was engaged in bottling stores in connection with a distillery. About four months previous to this she first complained of gastric disturbance—uncomfortable feeling after food, vague epigastric pains, vomiting, and, on one or two occasions she stated she brought up blood. Her stomach trouble becoming more marked and being unable to follow her occupation, at which she had a good deal of stooping and bending forward to do, she was sent into hospital as a case of supposed gastric ulcer.

On admission the abdomen was found not to be distended nor could any tenderness or fluid or hard nodules be detected. The patient could not point to any localised painful spot in the region of the stomach : the liver was found to be uniformily enlarged, extending about one inch below the costal cartilages and filling almost the whole epigastric region. smooth on the surface and no pain on deep pressure. The tongue was coated ; pulse : heard sounds ; lungs and temperature normal. The amount of urine secreted each day averaged 40 oz., was free from albumen or sugar, amount of urea normal, contained abundant water. The uterine functions were normal ; the bowels were not constipated and the motions were not clay-coloured. Professor McWeeney kindly examined the blood for me and found it practically normal. It was quite evident the gastric trouble was due to pressure,

and this remained her most distressing symptom all through her illness.

After admission the liver enlarged rapidly and remained free from pain. She took nourishment badly and lost flesh quickly. Six weeks after admission ascites appeared, and a couple of weeks afterwards a slight jaundice supervened, which, however, never became well marked. Except for the weight and pressure of the enormously enlarged liver she never complained of actual pain. At the same time the ascites appeared slight nodules could be felt on the liver for the first time, and these in a short time became distinctly marked. Before death, which occurred on the 18th Jan., eleven weeks after admission, the liver almost filled the whole abdomen, and when removed weighed 197 oz. The temperature remained normal until ten days before death, when it commenced to fluctuate, reaching as high as 103°. Her illness lasted in all about seven months.

At the autopsy the abdomen was filled with dark-coloured fluid, there were no glands enlarged, the lungs, kidneys, uterus, and spleen appeared normal. The ovaries were slightly enlarged; the left one more so than the right. I greatly regret these were not kept for Professor McWeeney, as I had intended.

Looking at the case from a clinical standpoint, the prominent interesting facts about the case are :—

I. Age of patient.
II. Absence of any family history.
III. Painless character of the enlarged liver.
IV. The lateness at which the ascites, the nodules, and the jaundice appeared.

SECTION OF STATE MEDICINE.

THE NOMENCLATURE OF DISEASE AND CAUSES OF DEATH.*

By Ninian M. Falkiner, M.D., F.R.C.P.I.;
Diplomate in State Medicine;
Medical Superintendent of Statistics, Registrar-General's Office, Ireland.

I have the honour of addressing you at this the opening meeting of the second year of my Presidency of the State Medicine Section of the Royal Academy of Medicine in Ireland.

I hesitated to do so on the grounds of probably excluding valuable communications from others fellows of the Academy —the meetings of this Section being limited to two in the Session. However, as I consulted the Council of the Section in reference to my doubt, and as they were unanimous in the opinion that I should deliver an address, I have deferred to their ruling.

It is, no doubt, known to most, if not all, here that the Committeee appointed by the Royal College of Physicians, London, are at present engaged in preparing the Fourth Edition of the Nomenclature of Diseases, which will not be issued until the year 1906. As such a considerable time must elapse before its production, my distinguished colleague and friend, John Tatham, M.D. (Dublin), of the General Register Office, Somerset House, has revised the "list of causes of death," from which the statistical tables

* Being the Presidential Address delivered before the Section of State Medicine of the Royal Academy of Medicine in Ireland, on February, 20 1903.

of the Registrar-General for England are compiled. This list has been adopted by the Registrar-General for Ireland, with the full approval of the Royal College of Physicians of Ireland.

I propose under these circumstances to give a short account of the history of the evolution of vital statistics in England, from the time that the light of Scientific Medicine appears first to have illuminated (no matter how feebly) this important subject.

I also will point out the modifications which the revised nomenclature will introduce into the reports, with the hope that I may be able to impress on every practitioner of medicine of this country the importance of giving a well-defined and accurate "cause of death" when framing his certificate, as it is on this testimony, and this testimony alone, that the value of the mortality statistics of the nation depends.

If examples from current literature were necessary to prove the enormous public utility and importance of reliable mortality statistics, no better could be adduced than the Open Letter to the Registrar-General of England, which appeared from the pen of Mr. Stephen Coleridge in the *Contemporary Review* of October, 1902, the answer thereto by Mr. Stephen Paget in November, 1902, and the rejoinder of Mr. Coleridge in December, 1902. I do not intend to review or criticise these articles, but I do ask any medical practitioner who has any doubt on his mind as to the value of accurate mortality statistics, to read these most interesting letters.

The first name that I venture to connect with the classification of disease in these countries is that of William Cullen. "He was born in Lanark in 1710 and died in 1790. He founded a medical school in Glasgow. Among his pupils were William Hunter and the famous Joseph Black. He

occupied successively the Chairs of Chemistry, Institutes of Medicine, and Medicine, in Edinburgh, and taught clinical medicine at the Royal Infirmary. For many centuries all diseases had been referred to disorders of the fluids of the body. Just before Cullen's time Boerhaave added to this a pathology of the fibres, still strongly tinctured with the old fluid or humoural pathology. To Cullen is largely due the recognition of the important part played by the nervous system both in health and disease. He denied the theory supported by Boerhaave that the brain was an excretory organ, and the nervous influence a fluid. Many of his speculations as to reflex nervous action, the possible presence in a single nerve, both of motor and sensory fibres, and the connection of the motor and sensory nerve roots, have now proved to be justified."*

The works of Cullen were edited by John Thompson, M.D., of Edinburgh, in 1827, and from this edition the following abstract of Cullen's Nosology is taken :—

Class I.—Pyrexiæ	Orders	1. Febres. 2. Phlegmasiæ. 3. Exanthemata. 4. Hæmorrhagiæ.
Class II.—Neuroses	Orders	1. Comata. 2. Adynamiæ. 3. Spasmi. 4. Vesaniæ.
Class III.—Cachexiæ	Orders	1. Marcores. 2. Intumescentiæ. 3. Impetigines.
Class. IV.—Locales	Orders	1. Dysæsthesiæ. 2. Dysorexiæ. 3. Dyscinesiæ. 4. Apocinoses 5. Epischeses. 6. Tumores. 7. Extopiæ. 8. Dialyses.

"The History of Official Vital Statistics in England" may

* *Chambers' Encyclopædia.*

be said to coincide with the work of William Farr, who was born in Kenley in 1807. He appears to have studied medicine in London and Paris, and to have devoted his attention mainly to vital statistics and to the questions connected therewith.

A letter appears from him in the first report issued by the First Registrar-General for England (Mr. J. H. Lister), dated May 16th, 1839. This report contains an abstract for the year ending June 30th, 1838. Up to 1837 the vital statistics had been in the hands of the parish registrars, who furnished weekly "bills of mortality."

Central registration did not up to this period obtain in England, and although over sixty years have elapsed since the first report of the English Registry Office was issued, the words of the great chief of English medical statistics which appear therein may still, from their wisdom, beauty, and power, be listened to with advantage.

"Any improvement in the treatment of disease, and any addition to medical science, will tend ultimately to the diminution of human suffering, but the registration of causes of death is calculated to exercise a still more direct influence upon public health.

"Diseases are more easily prevented than cured, and the first step towards prevention is the discovery of their exciting causes.

"The Registry will show the agency of these causes by numerical facts, and measure the intensity of their influence. The annual rate of mortality will be found in some districts to be 4 per cent., and in others 2 per cent. In other words, the people in one set of circumstances live for fifty years, and in the other set of circumstances, which the registration will indicate, they do not live more than twenty-five years.

"In these wretched districts nearly 8 per cent. are constantly sick, and the energy of the whole population is withered to the roots. Their arms are weak, their bodies wasted, and their sensations embittered by privation and suffering. Half the life is passed in infancy, sickness, and dependent helplessness.

" In exhibiting the high mortality, the disease by which it is occasioned, and the exciting causes of the disease, the abstract of the Register will prove that, while a part of the sickness is inevitable, and a part can only be expected to disappear before progressive and social amelioration, a considerable portion of the sickness and deaths may be suppressed by the general adoption of hygienic measures, which are in actual but partial operation.

" It may be affirmed without great risk of exaggeration that it is possible to reduce the annual deaths in England and Wales by 30,000, and to increase the vigour (may I not add the industry and wealth) of the population in an equal proportion, for ' diseases are the iron index of misery, which recedes before strength, health and happiness as the mortality declines.' "

From the views held at the time that William Cullen lived and worked, it is clearly evident that much light had been thrown on the nature of the diseases which caused death at the time that the first report of the Registrar-General for England appeared. In it William Farr gives the first official classification of causes of death.

He classified these causes under three primary divisions. The first division included endemic, epidemic, and contagious diseases. The second division included the so-called sporadic diseases, or those arising in an isolated manner from ordinary causes, or from causes existing in the organism itself, and the third division including deaths from violence. This classification is apparently a development from the earlier division of causes of death into (1) plagues, and (2) sporadic diseases.

The establishment of central registration of deaths in England preceded the compilation of the report of the first Registrar-General of Scotland (W. P. Dundas) by eighteen years. During that period Wm. Farr, since a Fellow of the Royal Society, had modified his nosology, had abandoned the division of causes of death into plagues and sporadic

diseases, and had adopted a classification consisting of seventeen groups, with 104 causes of death ; the first or zymotic group, corresponding to what in the previous nosology comprehended the endemic, epidemic, and contagious diseases ; the second group of diseases of uncertain or variable seat include hæmorrhage, ulcer, cancer, and gout, which, according to our ideas, form a strangely incongruous family.

The registration of births and deaths was established in Ireland in 1864, twenty-seven years in the wake of the English office, and nine years after the foundation of the Registrar-General's Office in Scotland. Before the Irish Office existed in its present state, Mr. William Donnelly, C.B., was Registrar-General of Protestant Marriages from the year 1845. He became in 1864 Registrar-General of Marriages, Births and Deaths for Ireland, and continued in office until 1876, during which period Dr. W. Malachy Burke was Medical Superintendent of Statistics in his office. In 1876 Mr. Donnelly retired, and Dr. Burke was appointed Registrar-General, holding that office in combination with the post of Medical Superintendent of Statistics. He lived but three years after his appointment as Registrar-General, dying in the August of 1879. He was succeeded by Dr. Thomas Wrigley Grimshaw, C.B., whose memory, both for his kindly personality, and also for his useful and energetic career, is still green in the recollection of all the members of this Section of the Academy, of which he was an honoured ex-President, and a valuable and faithful ally.

The first annual detailed Report on Vital Statistics for Ireland was issued for the year 1864. In the classification therein adopted a change from that used for the reports in England and Scotland in 1855 is found to have been made in accordance with a nomenclature of disease which had been framed by William Farr. This classification, with modifi-

cations from time to time, has been used in the official reports up to the present time.

STANDARD NOMENCLATURE.

In the year 1864 the Registrar-General for Ireland issued to every member of the medical profession in Ireland a copy of Dr. Farr's "Nosology," which had been issued to the profession in England in the year 1845 by the Registrar-General for England.

In 1869 the Joint Committee on the Nomenclature of Diseases, which had been appointed by the Royal College of Physicians of London in 1857, issued the First Edition of their work. Dr. W. M. Burke had joined this Committee subsequently to the year 1864.

The scheme of this "Nosology" divided the causes of death as follows :—

A. General Diseases—

a. Infectious Diseases.

b. Constitutional.

B. Local Diseases.

1,146 causes of death, or rather illnesses, are herein given, not including 3 appendices on—

1. Operations.
2. Parasites.
3. Congenital Malformations.

In 1885 the First Revision was issued. Dr. Grimshaw is thanked in the preface, with others, for the help rendered to the Committee, but by a clerical error he is described as Dr. Graham, Registrar-General for Ireland.

The Committee, in this edition, abandoned the division of diseases into general and local, adopting instead of the former four groups :—

Group A.—Diseases dependent on morbid poisons.

Group B.—Disease dependent on external agencies other than morbid poisons.

Group C.—Developmental diseases.

Group D.—Not classified.

The division local diseases was retained.

As in the previous edition, the name of each cause of death is given in Latin, French, German, Italian, and English.

The next edition was issued by the Nomenclature Committee in the year 1896.

It is to be regretted that there is a conspicuous absence on the Revision Committee of the Third Edition of this important publication of any representative from Ireland, either from the Royal College of Physicians or from the Office of the Registrar-General. In this edition the division of causes of death into general and local diseases is restored, and is to be in future the standard of Nosological Classification for Great Britain and Ireland.

In the words of Dr. Tatham, who succeeded Dr. Ogle on the Revision Committee which had been appointed by the College of Physicians of London in 1892, "The list of causes of death published in our annual reports has remained practically unchanged for the last twenty years, notwithstanding that two separate editions of the Nomenclature of Diseases have been published by the Royal College of Physicians of London during that period."

The Registrar-General has determined to discontinue the present classification in the 1901 Report, and proposes to divide diseases into (*a*) General Diseases, and (*b*) Local Diseases, the latter being grouped for convenience according to organs, or systems affected.

The use of such terms as "zymotic," "miasmatic," "constitutional," &c., to describe groups of "general diseases," differing widely as they do with respect to their ætiology, can no longer be justified.

The main objects in revising the list of causes of death were :—

(1.) To bring statistics of mortality into line with the official nomenclature of the College of Physicians, taking care to interfere as little as possible with the comparability of the new tables and those of past years.

(2.) To endeavour to induce practitioners to be more exact in certifying causes of death by providing additional lines in certain cases in the National Records of Mortality.

A careful revision of the list modified by Dr. Tatham from the "Official Nomenclature (1896)" shows the following changes which have been approved by the Royal College of Physicians of Ireland, and have been adopted by the Registrar-General for Ireland :—

1.	Puerperal Phlegmasia Dolens	Childbirth	to Gen. Dis., Gr. A.
2.	Infectious Endocarditis	Heart, B. V.	,, ,,
3.	Epidemic Pneumonia	Not in N.	,, ,,
4.	Phlegmon Carbuncle	Skin	,, ,,
5.	Lupus	,,	,, ,,
6.	*Rheumatism of Heart*	Not in N.	,, ,,
7.	Injury at Birth	,,	,, ,,
8.	Atelectasis	Respiratory	,, ,,
9.	*Dentition*	Digestive	,, ,,
10.	Mastoid Disease	Not in N.	to Otitis, Gr. B. II.
11.	(*a*) Cerebral Hæmorrhage (*b*) Cerebral Embolism (*c*) Cerebral Thrombosis (*d*) Apoplexy (*e*) Hemiplegia	Nervous	to Circulatory, Gr. B. IV.
12.	*Gastro-enteritis*	Not in N.	to Digestive
13.	Appendicitis	,,	,,
14.	*Old Age*	From Group A.	to Ill-defined
15.	*Ascites*	Diseases of Liver	,,

New List of Causes of Death as used in the Annual Reports of the Registrar-General for England and Wales, Scotland and Ireland[a] *:—*

GENERAL DISEASES.

Small-pox	Vaccinated. Not Vaccinated. Doubtful.	Chicken-pox. Measles (Morbilli). Epidemic Rose Rash.
Cow-pox.	Effects of Vaccination.	Scarlet Fever.

General Diseases—*continued.*

Typhus.
Plague.
Relapsing Fever.
Influenza.
Whooping-Cough.
Mumps.
Diphtheria (*Membranous Croup*).
Cerebo-Spinal Fever.
Simple Continued Fever.
Enteric Fever.

Asiatic Cholera.
Epidemic Diarrhœa, Epid. (or *Zym.*) Enteritis.
Diarrhœa, Choleraic Diarrhœa.
Dysentery.
Malarial Fever.

Hydrophobia.
Glanders, Farcy.
Anthrax, Splenic Fever.
Tetanus.
Syphilis.
Gonorrhœa, Stricture of Urethra.

Puerperal Septicæmia, Sapræmia.
Puerperal Pyæmia.
Phlegmasia Alba Dolens.
Puerperal Fever.

Infective Endocarditis.
Epidemic Pneumonia, Pneumonic Fever.
Erysipelas.
Septicæmia, Sapræmia, (not Puerperal).
Pyæmia (not Puerperal).
Phlegmon. Carbuncle (not Anthrax).
Phagedæna.
Other Septic Diseases.
Tuberculous Phthisis (Pulm. Tuberculosis),
Phthisis (not otherwise defined).
Tuberculous Meningitis.
Tuberculous Peritonitis.
Tabes Mesenterica.
Lupus.
Tubercle of other Organs.
General Tuberculosis.
Scrofula.

Parasitic Diseases.

Starvation.
Scurvy.
Alcoholism, Delirium Tremens.
Opium, Morphia Habit.
Poisoning by Ptomains and other Food Toxins.
Industrial Poisoning { by Lead. / by Phosphorus. / by Arsenic and other Metals.
Rheumatic Fever, Acute Rheumatism.
Rheumatism of Heart.
Chronic Rheumatism.
Rheumatic Arthritis, Rheumatic Gout.

Carcinoma.
Sarcoma.
Cancer, Malignant Disease (not otherwise defined).

Rickets.
Purpura.
Hæmophilia, Hæmorrhagic Diathesis.
Anæmia, Leucocythæmia.
Diabetes Mellitus.

Premature Birth.
Congenital Defects.
Injury at Birth.
Atelectasis.
Want of Breast Milk.
Teething.

* The terms printed in *italics*, being the names of symptoms merely, or being unauthorised or otherwise objectionable, should be used in Medical Certificates, only when precise information is unobtainable.

Local Diseases.

Diseases of Nervous System—
Meningitis, Inflammation of Brain.
Softening of Brain.
General Paralysis of Insane.
Insanity (not Puerperal).
Chorea.
Epilepsy.
Convulsions.
Laryngismus Stridulus.
Locomotor Ataxy.
Paraplegia and disease of Cord.
Neuritis, Periph, Polyneuritis.
Brain Tumor (not specific).
Nervous System, other Diseases.

LOCAL DISEASES—*continued.*

DISEASES OF ORGANS OF SPECIAL SENSE—
Otitis, Mastoid Disease.
Epistaxis, Nose Disease.
Ophthalmia, Eye Disease.

DISEASES OF HEART—
Valve Dis., Endocarditis (not infective).
Pericarditis.
Hypertrophy of Heart.
Angina Pectoris.
Dilatation of Heart.
Fatty Degeneration of Heart.
Syncope, Heart Disease (not otherwise defined).

DISEASES OF BLOOD VESSELS—
Cerebral Hæmorrhage, Emb., Throm.
Apoplexy Hemiplegia.
Aneurysm.
Senile Gangrene.
Embolism, Thrombosis (not Cerebral).
Phlebitis.
Varicose Veins.
Blood Vessels, other Diseases.

DISEASES OF RESPIRATORY ORGANS—
Laryngitis.
Membranous Laryngitis (not Diphtheritic).
Croup (not Spasmod. or Membr.)
Larynx. Trachea, Diseases of (not otherwise defined).
Bronchitis.
Lobar, Croupous Pneumonia.
Broncho, Catarrhal, Lobular—Pneumonia.
Pneumonia (not otherwise defined).
Emphysema, Asthma.
Pleurisy.
Fibroid Disease of Lung.
Respiratory Diseases, other.

DISEASES OF DIGESTIVE SYSTEM—
Tonsillitis, Quinsy.
Mouth, Pharynx, Œsophagus, Disease (not specific).
Gastric Ulcer.
Gastric Catarrh.
Stomach, other Dis. (not Malig.).
Enteritis (not Epidemic).
Gastro-Enteritis.

DISEASES OF DIGESTIVE SYSTEM—. *continued*—
Appendicitis, Perityphlitis.
Hernia.
Intestinal Obstruction.
Other Diseases of Intestines.
Peritonitis (not Puerperal).
Cirrhosis of Liver.
Liver and Gall-bladder, other Diseases.
Digestive System, other Diseases.

LYMPHATIC, &C., DISEASES—
Spleen Disease.
Lymphatic System, other Diseases.
Thyroid Body Disease,
Supra-renal Capsules Disease.

DISEASES OF URINARY SYSTEM—
Acute Nephritis, Uræmia.
Chronic Bright's Disease, Albuminuria.
Calculus (not Biliary).
Bladder and Prostate Disease.
Urinary System, other Diseases.

DISEASES OF GENERATIVE SYSTEM—
Ovarian Tumor (not Malig.).
Other Diseases of Ovary.
Uterine Tumor (not Malig.).
Other Diseases of Uterus and Vagina.
Disorders of Menstruation.
Gener and Mam. Organs, other Diseases.

ACCIDENTS OF CHILDBIRTH—
Abortion, Miscarriage.
Puerperal Mania.
Puerperal Convulsions.
Placenta Prævia, Flooding.
Other Accidents of Pregnency and Childbirth.

JOINT DISEASES.
Caries, Necrosis.
Arthritis, Periostitis.
Other Diseases of Locomotor System.

SKIN DISEASES—
Ulcer, Bedsore.
Eczema.
Pemphigus.
Skin Diseases, other.

THE NOTIFICATION OF MEASLES.

BY

SIR C. CAMERON, C.B., M.D., M. & HON. F.R.C.P. & R.C.S.

Medical Superintendent Officer of Health for Dublin.

MEASLES is one of the zymotic diseases which are not in the Schedule of Diseases in the Infectious Diseases Notification Act. The Sanitary Authority may, with the sanction of the Local Government Board, add zymotic diseases to those in the Schedule. The Council added whooping cough and measles to the Schedule. The former is no longer notifiable, as experience proved, in Dublin as elsewhere, that it was practically valueless.

It is desirable now to consider whether or not any advantage worth the cost is obtained by keeping measles on the Schedule.

I sent a circular letter to the medical officers of the 109 largest towns in the United Kingdom, asking information in reference to the notification of measles, its treatment in hospital, and if disinfection in reference to the disease was carried out. All, save three, replied, and from the replies the following information has been obtained :

In the following 87 towns measles is not and has not been notifiable :—

ENGLISH PROVINCIAL TOWNS.—Aberdare, Ashton-under-Lyne, Aston Manor, Barrow-in-Furness, Barnsley, Bath, Bootle, Bournemouth, Cambridge and Chesterton, Carlisle, Chester, Cheltenham, Darwen, Devonport, Eastbourne, Great Grimsby, Great Yarmouth, Gloucester, Hornsey, Hastings, Keighley, Leyton, Lincoln, Longton, Macclesfield, Middlesborough, Merthyr-Tydvil,

Newport, (Mon.) Northampton, Oxford, Rhondda, Rochdale, Scarborough, Smethwick, Southampton, St. Helens, Stockport, Stockton-on-Tees, Tottenham, Tynemouth, Walthamstow, Wallasey, Warrington, Walsall, West Bromwich, Willesden, West Hartlepool, Worcester, York.

London Boroughs.—Battersea, Bermondsey, Bethnal Green, Camberwell, Chelsea, City of London, City of Westminster, Deptford, Finsbury, Fulham, Greenwich, Hammersmith, Hackney, Holborn, Islington, Kensington, Lambeth, Lewisham, Paddington, Poplar, Southwark, Stepney, Stoke-Newington, St. Marylebone, St. Pancras, Shoreditch, Wandsworth, and Woolwich.

Scotch Towns.—Dundee, Dudley, Glasgow, Inverness. and Perth.

Irish Towns.—Dublin, Rathmines, Pembroke, Belfast, Cork, Limerick, Londonderry, and Waterford.

In the following 13 *towns it was formerly notifiable, but is not now :—*

Bury, Chesterton, Colchester, Coventry, Darlington, Edinburgh, Exeter, Hanley, Jarrow, Paisley, Rotherham, part of Westminster, and Wigan.

In the following 6 *towns it is notifiable :—*

Burton-on-Trent, Dover, Reading, Southport, Aberdeen, and Govan,

Therefore out of 106 towns measles is only notifiable in six. In one of these (Aberdeen) the utility of continuing it is now under consideration.

In the following 4 *towns it is notified voluntarily :—*

Henley, Wigan, Leith, and Paisley.

It is significant that out of the 19 towns which adopted measles notification, 13 have repealed the resolution making this disease notifiable.*

* Not including Dublin City and the Townships of Rathmines and Pembroke, in all of which measles is notifiable.

The only towns in Scotland in which measles is notifiable are Aberdeen and Govan. In the London Metropolitan Boroughs, with a population of four and a-half millions, it is not notifiable.

In Islington, Paddington, and York, school teachers notify the disease ; and in the case of York the teachers are not paid the usual fees, but if notification has been prompt, they get some remuneration from the " epidemic grant."

In Henley, fees are paid for " first cases " voluntarily notified.

HOSPITAL ACCOMMODATION.

In 79 of the towns measles is not treated in hospital. In the others, cases are " occasionally," " seldom," " rarely," " very rarely," when " occurring in public institutions or lodging-houses," " when paid for ; " admitted also in " exceptional cases," and from hotels and shops. In Glasgow when the cases occur in institutions or small houses. In Leith " severe forms and cases from crowded houses." In Paisley " first cases in crowded houses, and servants in large private houses." In Aberdeen the cases are admitted " when considered necessary." The answers from Govan, Limerick, and Cork were " yes."

DISINFECTION.

In 34 towns disinfection is never performed. In seven towns it is carried out. The answers from the remaining 65 towns showed that it was " very rarely " or " occasionally " performed in them. " When requested," and " if asked for," were the general replies to the query.

CONCLUSION.

It is clear that the notification of measles is in force in but an insignificant number of towns. The fact that the

majority of towns that adopted the notification of this disease having reversed their action, seems to show that little, if any, good resulted from the notification.* I would, therefore, recommend that notification of measles should be restricted to first cases of the disease when an epidemic of measles has been established. As regards the treatment of measles cases in hospital, the dispensary physicians would, as heretofore, have cases that could not be properly treated at home removed to hospital. The teachers in schools should notify cases, and some remuneration should be given them for their trouble, and we believe this would be legal under the provisions of the Public Health Act.

The Public Health Committtee of the Dublin Corporation made the following recommendation to the Town Council "That after the 31st March, 1903, the notification of cases of measles be confined to the first cases occurring in the practice of the physician in each quarter of the year. That is, if a case of measles were treated for the first time in the quarter ended 31st March, no further case should be notified until after an expiration of three months from that date."

If there be the slightest use in notification of measles it is only in the notification of early cases. The efforts of the Sanitary Authority may be of use in securing complete isolation of fresh cases, but when an epidemic is established, experience has shown that but little good results from notification. Of course voluntary notifications will often be made, and the dispensary physicians will see that the patients are, if necessary, sent to hospital.

The recommendation of the Public Health Committee was adopted by the Town Council, but it is subject to the approval of the Local Government Board. It is doubtful that the Board will sanction payments for voluntary notifi-

* The notification in connection with the present epidemic of measles will cost about £500.

cations ; though the Local Government Board of England have virtually sanctioned such payments. That Board has, however, discretionary powers to act in relation to subjects not specially dealt with in the Statutes.

METHODS OF ISOLATING THE TYPHOID BACILLUS FROM SOIL, WATER, FÆCES, Etc., WITH SPECIAL REFERENCE TO (AND DEMONSTRATION OF) THE NEW METHOD OF DRIGALSKI AND CONRADI.*

By Professor E. J. McWeeney, M.D., D.P.H.;
Bacteriologist to the Local Government Board for Ireland.

The speaker began by referring to the difficulties which were encountered in the effort to demonstrate the typhoid bacillus, owing to the absence of specific staining reaction, special virulence for animals, and appropriate enrichment-method. The many plans that had been suggested for the encouragement of the growth of Eberth's bacillus at the expense of that of its saprophytic congeners had proved ineffective. Addition of antiseptics to fluid media to which the suspected substance was added resulted not in the exclusive development of the typhoid bacillus, but in the production of an attenuated form of B. coli, which was liable to be mistaken for it. The speaker had satisfied himself that when samples of bile containing large numbers of genuine typhoid bacilli and a few colon bacilli are added to Parietti bouillon and incubated, in 24 hours only the colon bacilli can be found by plating out. The methods of Holz, Elsner and Piorkowski had proved equally unsatisfactory. On the other hand, he had had excellent results with the Drigalski medium, the composition of which was as follows :—Chopped beef, 3 lbs. ; water, 2 litres ; mix ; let stand till next day ; strain off the flesh-water ; squeeze out the meat ; boil for an hour ; filter ; add 20 grms. Witte's

* Read before the Section of State Medicine of the Royal Academy of Medicine in Ireland, on May 1, 1903.

peptone ; 20 grms. nutrose (Höchst) ; 10 grms. NaCl ; boil for an hour ; filter ; add 60 grms. agar ; boil 3 hours (or autoclave 1 hour) ; make faintly alkaline to litmus paper ; filter ; boil an hour. Meanwhile prepare a solution of litmus according to Kubler and Tiemann, boil it for 10 minutes ; to 260 c.c. of this add 30 grms. pure lactose, boil for 15 minutes, and add to the boiling agar medium ; shake well, and restore if necessary the faintly alkaline reaction. Then add 4 c.c. of a hot 10 p.c. solution of anhydrous Na_2Co_3 and 20 c.c. of a freshly prepared solution of crystal violet B. Höchst (strength 0·1 grm. in 100 c.c. warm sterile distilled water). The medium is now ready, and a number of Petri dishes should be at once poured with some of it (about 15 c.c. in each) and the rest stored in flasks of about 200 c.c. content. The inoculation is done by rubbing the dry, hard surface of the medium over with a bent glass rod. A series of plates should be rubbed over with the same rod without recharging so as to get discrete colonies. The speaker allows his plates to cool after pouring, without the lid, so as to avoid condensation-water. While cooling they are loosely covered with a piece of sterile filter paper. Contamination with air germs does not occur owing to the inhibitory action of the crystal violet. After inoculation the plates are incubated 18-24 hours at 37°. It is then quite easy to recognise the typhoid colonies by their bluish, transparent appearance and small size, whilst the coli colonies are larger, more opaque, often doubly contoured, and reddish. It is always necessary to test the selected colonies, which is most quickly done by rubbing up a small trace in a hanging drop of highly dilute typhoid serum, and observing whether agglutination occurs. In this way the bacillus of Eberth can readily be detected in the fæces within 24 hours, and the diagnosis made at a period when the Gruber Widal test as yet yields a negative result. As the result of his own experience Professor McWeeney could fully corro-

borate the statements made by the inventors of the medium. Negative results were of little value, however, unless repeated examinations were made, and he had had such in cases verified as typhoid at the autopsy. By the aid of the method he had in an abnormal case of typhoid detected the bacillus of Eberth in the bile, contents of duodenum, liver, and kidney, whilst he had failed to detect it in the contents of the ileum and colon. He had further found that the bacilli had undergone no diminution in the bile after keeping for three weeks in a capillary pipette, though in the presence of numerous colon bacilli. In the duodenal and other intestinal contents however, they were not to be detected after keeping for the same period. The very numerous blue colonies that developed on the plates inoculated with the putrid fæces appeared to be B. fæcalis alcaligenes of Petruschky—at any rate, not the typhoid bacillus. He emphasised the necessity for the careful testing of suspicious colonies on plates from old putrescent material before giving a positive diagnosis. In conclusion the speaker described the striking results achieved with the aid of this medium by Koch at Trier, where the bacillus of Eberth was found in the fæces of apparently healthy "contacts," and urged the necessity of individual study of each case of typhoid, and of examining the fæces of "contacts," and, where necessary, of disinfecting them, in order to get the upper hand of this infectious disease, as we have already done in the case of cholera and plague.

SECTION OF ANATOMY AND PHYSIOLOGY.

THE MECHANICAL STRUCTURE OF BONE, DEMONSTRATED BY THE METHOD OF RÖNTGEN STEREOSCOPY.

By Professor A. F. Dixon and Dr. W. S. Haughton.

In bringing under the notice of the Academy, this method of demonstrating bone structure by Röntgen stereoscopy, Prof. Dixon and I would like to emphasise from the outset, its value as a practical method of demonstration, readily available in any anatomical department ; we would further like to call attention to the possibilities it opens up in surgery for the more correct interpretation of the planes of fracture when bone is subjected to undue strain.

Stereoscopic Rediographs of bone present a singularly beautiful appearance when viewed in the Wheatstone stereoscope. The effect produced is that of a perfectly transparent bone, in which every individual lamella can be traced from end to end. Any change in the direction of these lamellae can be at once noticed, even when they pass through many planes at different depths in the bone. This observation is of course impossible, in any section of the bone prepared by the saw, or "grinding down" methods, as they practically deal with only a single plane, in which length and breadth are represented, but not depth, and thus if a given lamella is changing its plane, it becomes lost in the face of the sawn section, and cannot be traced with certainly into any other section or sections. This method comes within the reach

of any anatomical department having access to a reliable X-Ray apparatus. As Radiographs of the entire skeleton can be obtained in a few days, without any great trouble. The bones are not in any way damaged in the process, and require no special preparation, as they may be photographed recent or old, dried or unmacerated.

Suitable prints having been prepared by this method, when examined in the reflecting stereoscope give a representation of the bone which is perfect in relief contour and perspective ; and the effect being that of a transparent bone, the structure and disposition of the lamellae are readily observed.

The longitudinal and transverse lamellae are thus very well demonstrated near the ends of the long bones : and further *spiral* lamellae are seen in all tubular bones.

These spiral lamellae are best marked in the upper end of the femur, and the upper end of humerus—but may also be observed in such parts as the neck of the ribs—ends of clavicle, and transverse processes of the vertebrae.

Where a tubular bone curves, there the spiral arrangement is best marked. They further appear to change their direction when approaching an articular surface, arranging themselves in planes perpendicular to the surface of pressure.

The *lamellae at right angles* to the articular surface of pressure, as is well known, comprise the " pressure lamellae" in the mechanics of bone ; while those transverse to the axis of the bone (more or less parallel to the articular surface) are the " tension lamellae "—keeping the bone from bursting laterally when compressed in its long axis.

The shafts of long tubular bones have to resist the strains of torsion and bending : and it is in them that the *spiral* lamellae are best seen—more particularly at the weakest point, namely when they curve—as in neck of femur.

It is easy to show by mechanics that the structural ar-

rangements which will confer on a tube the *maximum rigidity* with *minimum of material*, is that of *right and left-handed* intersecting spirals, welded at the points of intersection. And this we practically have in the spiral lamellae of the long bones.

An analogous arrangement in nature is well seen in the white sponge (*enplectella*), and among engineering models in the " trestle bridge."

In the upper end of femur this method further demonstrates the necessity for rigidity owing to the great *shearing stress* established in this part of the bone from the fact, that the *two main systems* of lamellae springing from the *outer aspect* of the bone are " in tension "—while the *two chief systems* arising from *inner side* are *in compression.*

To discuss *in detail* the individual variations in the lamellae which we have observed, peculiar to each bone, would occupy too much time on the present occasion—and we prefer to let the skiagrams speak for themselves.

In the lateral and basal views of the *skull* many points of interest both to the anatomist and surgeon are well demonstrated. Its chief advantage here is that you get a " bird's eye view " of the skull in true perspective—and being transparent the relation of internal and external parts can be *viewed* simultaneously—for instance the relations of the groove for the lateral sinus to the mastoid air cells, and mastoid process externally.

The relation of the cerebral fossae and basal pramina are well shown—as also those of the antrum of Higleum to the alveolar sockets and teeth.

The *advantages* we claim for this method of *anatomical demonstration*, are

1. *That it is readily applied*—Because we examined the entire human skeleton in 8 days—with some monkeys' and birds' bones thrown in for *comparison.*

2. That it requires *no special preparation* of the bones—which may be recent or old, dirty or cleaned.

3. Does *not damage* specimen.

4. Gives *more perfect reproduction* of bone structure than any other method.

5. Lends itself to *demonstration.*

6. Lays foundation on which to build *intelligent argument* as to *site* and *plane* of fractures in bones.

The method shows well, not only the longitudinal and transverse lamellae in cancellous tissue, but also in long bones system of right and left-handed intersecting spinal lamillae. These spinal lamellae are seen in all tubulare bones and are best marked where these bones curve, as in upper end of femur and humerus, clavicle, neck of rib, and transverse processes of vertebrae.

The apparatus used was the very ingenious Röntgen stereoscope devised by M'Kenzie-Davidson.

ON SECTIONS OF THE ADULT HUMAN BODY MADE WITHOUT FREEZING.

By Alec Fraser, M.B., F.R.C.S.;
Professor of Anatomy, Royal College of Surgeons, Ireland.

Professor Fraser gave a *résumé* of his method of cutting in various planes serial sections of the adult human body without freezing, but after hardening with a solution of formalin and spirit injected from the femoral artery. He had described his method to the Section in 1899, and had then shown a series of transverse sections of the adult made from head to foot at intervals of about one inch. Since that date he had cut a number of bodies at various ages in the median longitudinal plane, and he showed to the meeting an adult which had been cut over three years ago, and the body of a child about three years of age which had been cut the day before.

It could scarcely be credited with what ease the body could be divided after some experience in the long median plane, and without any loss of substance. His habit was to outline the median plane—the body lying on its face—with an aniline pencil from the coccyx to the glabella, then a sharp knife was passed through the soft structures from the anal opening to the point of the coccyx, thence along the median line through the soft parts until the point of the knife was stopped by the back of the coccyx, the spine of the vertebræ, and the bony vault of the skull.

A fine saw with a lifting back, made by Weiss for the purpose, was now introduced at the coccyx and made to divide the vertebral column from below upwards, the point of the saw never passing deeper than the front of the bodies of the vertebræ; then it was passed through the cranial

vault, the contents of the cranial cavity and a certain length along the cranial base. It was then withdrawn, as the body had now to be turned on its back and the cutting finished from the front. The median plane was outlined with the pencil from the pubes to the glabella, the knife then passed through the soft parts from the glabella to the xiphoid appendage until stopped mainly by the two jaw-bones, the body of the hyoid and the front of the sternum. The saw was now introduced at the cranial vault where it had previously ended and was carried down through the bones of the face and part of the cranial base left uncut when working from behind. The body of the hyoid and the sternum is then divided, and the saw is not further required unless the cartilage at the symphysis pubes has become in part ossified when it has to be passed through it.

Should the subject be a male a director is passed down the spongy part of the urethra and the knife is passed along it from the glans penis to the raphé of the perineum and the anal opening when it is not further required.

The knife is then carried rapidly headwards through the symphysis pubes, the abdominal wall and through the abdominal viscera, thence through the contents of the thoracic cavity, the point of the knife running between the divided vertebræ behind and the blade through the soft parts in front. The two halves of the body now fall apart and the median long section is complete.

The two halves get a wash in the water tank, the coagulum in the heart and blood-vessels, and the contents of the alimentary canal are removed under the tap.

The specimens in his judgment are very perfect and very instructive when everything has gone well.

In addition to the specimens a large atlas of photographs of median longitudinal and other sections, and of serial dissections through thorax and abdomen both from front and

back, made after the manner published in his book, on the head and neck. was shown.

The case of undescended ovaries and Fallopian tubes was found in a corpulent female between 50 and 60 years of age, with no external evidence of ever having been pregnant.

On the left side the tube and ovary lay behind the commencement of the sigmoid flexure and slightly below the lower end of the kidney.

On the right side the tube and ovary lay behind the cœcum and lower end of the ileum. On both sides what would have become broad ligament was fixed to the posterior abdominal wall.

The uterus was apparently normal in its usual position at the back of the bladder, and from its fundus on either side the two Fallopian tubes passed over the pelvic brim up the posterior wall as already stated.

A CASE OF AMENORRHŒA.*

By John Knott, M.A., M.D., Ch.B., and Dip. Stat. Med. (Univ. Dubl.); M.R.C.P.I.; M.R.I.A., &c.

Some few years ago, when in daily attendance on an English lady, then resident in one of the suburbs of Dublin, a niece of my patient came to stay with her on a visit of some months duration. There arose at that date something of a small-pox scare, and the young lady expressed a wish to be vaccinated; this small operation was performed—with a successful result. During the progress of the case I had, of course, an opportunity of ascertaining the general state of her physical health. She was a perfect picture of vigorous activity, well developed in every direction, taking daily a a great deal of outdoor exercise—walking, cycling, tennis, and such-like—with the highest spirits and the keenest sense of enjoyment, while displaying an excellent appetite and an unimpeachable digestion. Under these conditions, I confess to having felt a good deal startled on learning that she had not menstruated during the previous five years; and the history of the case rather increased than diminished the surprise produced by the announcement of the fact. She had had an attack of typhoid fever five years before. She was then in London, and had the best advice. She was treated with the "ice-pack" at an early date of her illness, as the temperature was running up rapidly, and when this treatment was first applied, some menstrual (? menorrhageal) flow had shortly before appeared. The ice-packing

* Read before the Section of Obstetrics of the Royal Academy of Medicine in Ireland, on November 28, 1902.

had the double effect of checking the menstrual flow and of lowering the temperature. Recovery was perfect, after a moderately long convalescence; but the patient never saw a trace of menstrual discharge afterwards. When I questioned her as to her feelings on the subject, she told me, rather curtly, I thought, that she had "not the least wish ever to see it again." I daresay she began to suspect that I "meant business," but my enquiries were really actuated merely by knowledge of the anxiety which such suppression usually seems to cause. However, this young lady felt no such trouble of mind.

The peculiar history led me to think that the case might not be wholly unworthy of a few minutes' attention from the Obstetrical Section of the Royal Academy of Medicine in Ireland. I have noted the records of very many cases of curious anomalies of the mysterious phenomenon of menstruation; and a mysterious phenomenon it surely still remains, even in presence of all the available scientific search-lights of the twentieth century. Cases have been reported in which the discharge appeared at birth. At least one has been published in which it did not commence till the seventy-fifth year. In a case recorded by Blancardi, the patient was still actively engaged in menstruating at the age of 106 years. But I have not been able to find a case exactly similar to the one which forms the subject of this communication. To me the specially surprising features were the *perfect health* and the *utter absence of menstrual molimina* which had continued throughout the whole period.

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